# PALESTINE AND ITS TRANSFORMATION

*BY*

ELLSWORTH HUNTINGTON

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By Ellsworth Huntington

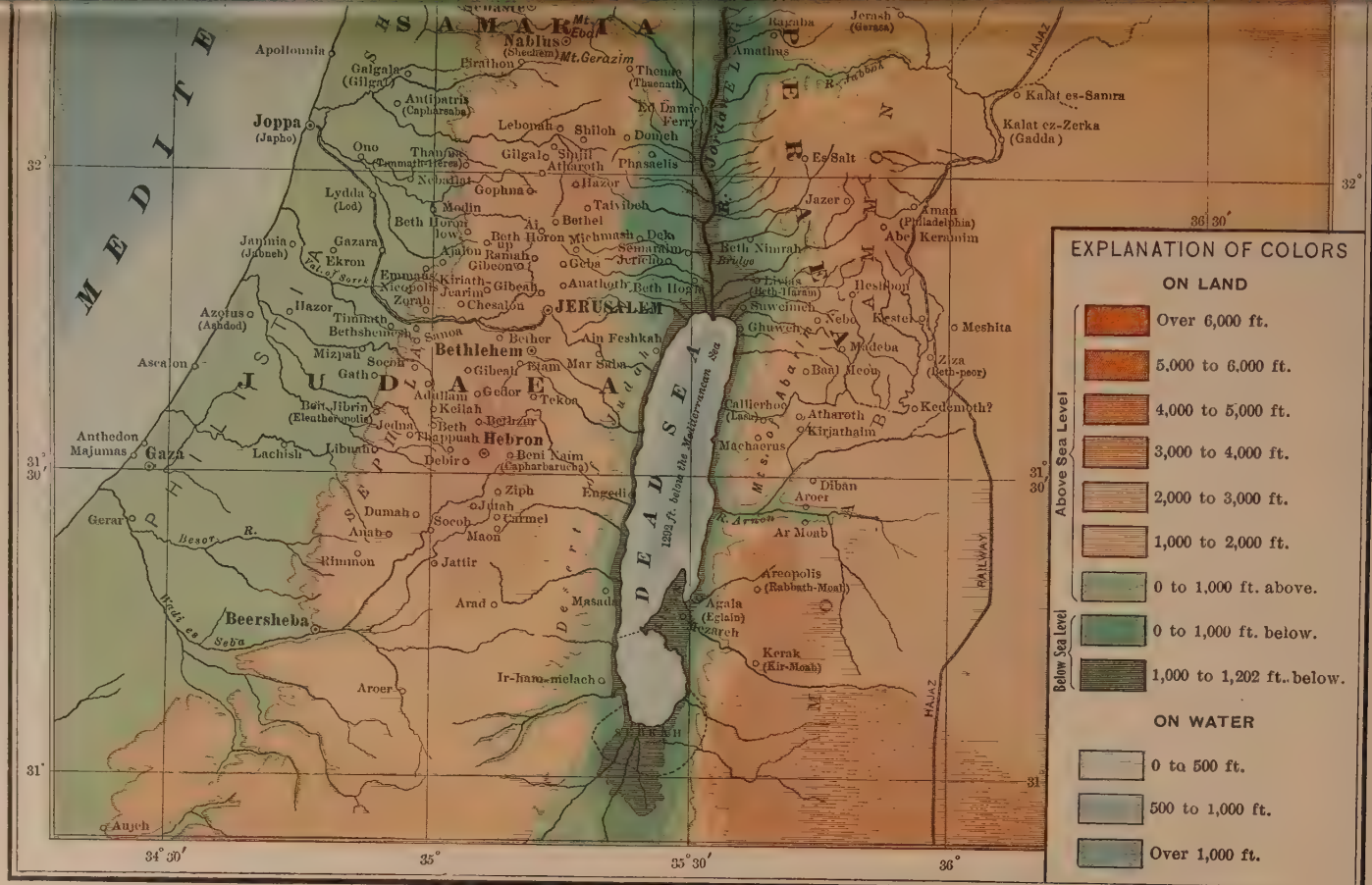
PALESTINE AND ITS TRANSFORMATION. Illustrated.

THE PULSE OF ASIA. Illustrated.

HOUGHTON MIFFLIN COMPANY
BOSTON AND NEW YORK

# PALESTINE AND ITS TRANSFORMATION

PALESTINE
SCALE OF MILES
0 10 20 30 40
Scale 22 miles to 1 inch
Railways
Longitude East from Greenwich
34° 30′
35°
35° 30′
36°
36° 30′
33° 30′
33°
32° 30′
Saida (Sidon)
Sarafand (Zarephath)
Sur (Tyrus)
Alexandroscenae
Hammon
Ecdippa (Achzib)
Beth-Emek
Acre (Ptolemais Akko)
Sycaminan
Haifa
Kartha
Caesarea
Dora
Narbata
Gaba
Hapharaim
Legio (Megiddo)
Kedesh
Hadad-Rimon
Taanach
Capercotia
Jeblaam
Dothan
Jenin (Engannim)
Beth Shean (Scythopolis)
Gilboa
Rehob
Pella
Esdraelon (Jezreel)
Vale of Jezreel
Beth Shittah
Shunem
Endor
Nain
Gabatha
Dabareh (Tabor)
Sennabris
Emakh
Nazareth
Sepphoris
Tiberias
Arbela
Magdala
Mejdel
Cana
Jotapata
Sogane
Gabara
Hazor
Helkath
Ebron
Ramah
Abdon
Jereon
Kedesh
Haroseth?
Kanah
Janoah
Achsaph
Beth Rehob?
Ijon
Abel
Dan
Banias (Caesarea Philippi)
Haspeya
Rasheiya
Damascus
Cochaba
Ina
Aere
Neve
Phaene (Missema)
ELLEHA (TRACHON)
Shuba (Saccaea)
Philippopolis
Namara
Coreathe
Mardocha
Kanawat (Kanatha)
Jebel Druze or Mts. of Hauran
Dera'a (Edrei)
Bosra
Sulkhad (Salchah)
Capitolias
Arbela
Camon
Tabac
Amatha
Gadara
Dium
Ashtaroth Karnaim
Gamala
Hippos
Girgesa
Julias (Bethsaida)
Chorazin
Safed
Giscala
Mt. Asamon
L. Huleh (Waters of Merom)
Mt. Lebanon
Mt. Hermon
Vat. of Bka's
R. Litany
R. Pharpa
Nahr Barada (Albana)
Mt. Carmel
Plain of Buttauf (Asokis)
Plain of Esdraelon
Lake of Gennesaret Sea of Galilee
PHOENICIA
GALILEE
JAULIA
BASHAN
HAURAN
LEAD
RAILWAY
MEDITERRANEAN SEA




## EXPLANATION OF COLORS

### ON LAND

Above Sea Level

- Over 6,000 ft.
- 5,000 to 6,000 ft.
- 4,000 to 5,000 ft.
- 3,000 to 4,000 ft.
- 2,000 to 3,000 ft.
- 1,000 to 2,000 ft.
- 0 to 1,000 ft. above.

Below Sea Level

- 0 to 1,000 ft. below.
- 1,000 to 1,202 ft. below.

### ON WATER

- 0 to 500 ft.
- 500 to 1,000 ft.
- Over 1,000 ft.

Richard L. Dodge.

# PALESTINE AND ITS TRANSFORMATION

BY

ELLSWORTH HUNTINGTON
*Assistant Professor of Geography in Yale University*

WITH ILLUSTRATIONS

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*Published April 1911*

TO

MY FATHER

MY BEST CRITIC

# PREFACE

In addition to the general interest which every thoughtful person must feel in Palestine, two special causes have led to the studies on which this book is based. In the first place, over ten years ago, the reading of Professor George Adam Smith's splendid volume on "The Historical Geography of the Holy Land" awakened in the author's mind a keen realization of the fact that from the standpoint of modern geography Palestine is absolutely unique. Hence arose the desire to understand more fully the physical features which give rise to this uniqueness, and which have helped to mould the life and thought of the Jewish race. In the second place, extensive travels in Asia Minor, Persia, India, and central Asia led the author to adopt certain theories as to changes of climate and their relation to history. Descriptions of Palestine suggested that the same changes have taken place there. Hence it seemed that in no other country could the theories be so well tested; for not only is Palestine so situated that climatic variations would there produce notable variations in habitability, but also its known history extends back to remote antiquity.

The gratification of this twofold desire to visit Palestine became possible in 1909, when the writer

was granted leave of absence from his duties at Yale University from February until October, and was aided in his project by a university appropriation, in the form of two years' income of the Hadley Publication Fund. The pages which follow are the result of this Yale Expedition. I wish here to thank President Arthur T. Hadley and the general officers of the University for their coöperation and interest.

I also wish to express my deep obligation to Professor G. A. Smith, not only for the original inspiration derived from his book, but also for the delightful way in which it reveals the true meaning of the country to one who is travelling there. The present volume is not designed to cover the same ground as Professor Smith's book. Nevertheless, for the sake of completeness, it has been necessary here, as there, to include a general description of the country. I know that in this I have unconsciously drawn largely on "The Historical Geography of the Holy Land," as well as on other works not specifically mentioned.

"Palestine and its Transformation" differs from other books on Palestine in three fundamental respects. In the first place the others have been written by men whose primary interest was centred in the religious significance of the land, or who, if geographers, were primarily interested in problems of map-making or the identification of Biblical sites. The present writer, on the con-

trary, is by profession a geographer, that is, one whose main interest is in the study of the effect of physical environment upon the distribution of living beings and upon man's mode of life and thought. In the second place, while writers on Palestine frequently mention the geological structure of the country and describe its scenery, no one has hitherto made use of the methods of modern geography to show the full effect of these features upon human history. In the first half of this volume I have attempted to divide Palestine into provinces differentiated according to geological structure, and then to show how the processes of erosion, acting for longer or shorter intervals, have given rise to distinct types of scenery. Each of these physiographic provinces is characterized by special climatic conditions, due partly to latitude and to position in respect to the sea, and partly to the relief of the land. Because of the physical differences, each province has had its own peculiar effect, not only upon the occupations of the people, and their relation to other races, but upon their character and history. Finally, the third fundamental respect in which this book differs from others is in its treatment of climate. The majority of geographers and, still more, of historians have assumed that any changes of climate which may have taken place during the period covered by recorded history have been of negligible importance. Good authorities, how-

ever, have questioned this view. The present volume discusses the problem in detail; and the conclusion is reached not only that the climate of the past five thousand years has been subject to numerous changes, but that these may have been a potent factor in the guidance of some of the greatest historical movements. So important is this subject that half the volume is devoted to it.

A word should be added as to the map which accompanies this book. In the matter of nomenclature it is avowedly inconsistent. Those names are used which are most commonly known, without respect to whether they are Hebrew, Greek, Latin, or Arabic. The colored map, the relief map, and the diagrammatic representation of Palestine are all prepared with the especial purpose of bringing into prominence the fact that the country is highly diverse in topography. The relief map, which serves as frontispiece, is a photograph of the model prepared by the Palestine Exploration Fund, and is reproduced here by courtesy of the Committee of the Fund, to whom thanks are due from every student of Palestine.

My travels in Palestine were shared by Mr. Clarence F. Graham of Albany, New York, to whom I owe much gratitude for his unfailing good humor even when we experienced grave difficulties and serious inconveniences in the desert and elsewhere. I also wish to express my thanks to the many people who aided us with the whole-hearted-

ness which is especially characteristic of missionaries. Mr. Hornstein of Jerusalem assisted much in arranging our first trip to the Dead Sea; Mr. Hughes, proprietor of the Hughes Hotel, was most considerate in planning for all of our expeditions which started from Jerusalem; Mr. John Whiting of the American Colony at Jerusalem put at our disposal a large amount of practical knowledge as to travel in the little visited regions of the south; and Dr. and Mrs. Patterson, of the Scotch Presbyterian Hospital at Hebron, especially made us feel the unity of the English-speaking nations. All these and many others cheerfully helped us, often at the cost of genuine inconvenience, and to all we are most grateful.

Portions of the material presented in this volume have already been published in *Harper's Magazine* for 1910 and in the *Bulletin of the American Geographical Society* of New York for 1908. In the immediate preparation of the book I have been greatly helped by the contribution of Professor H. C. Butler of Princeton, which appears as chapter xiii. The literary form of the work has been improved in many respects by the criticisms of my father, Henry S. Huntington, who has carefully revised the entire manuscript. Since the volume was in print it has had the further advantage of being read in whole or in large part by Professors C. C. Torrey, F. W. Williams, and C. F. Kent of Yale University, and by Mr.

Henry S. Huntington, Jr., who have made most valuable suggestions. To each of the men here mentioned I take pleasure in expressing my indebtedness.

E. H.

Yale University,
New Haven, Conn.
February, 1911.

# CONTENTS


I. The Heart of the Land . . . . . 3
II. The Land as a Whole . . . . . 19
III. The Coasts of Phœnician and Jew . . . 42
IV. The Debatable Shephelah . . . . . 66
V. The Wilderness of Judea . . . . . 82
VI. The Parched Land of the Negeb . . . 104
VII. A Contrast of Physical Form . . . . 136
VIII. Galilee of the Gentiles . . . . . 163
IX. The Ghor and the Dead Sea . . . . . 180
X. Beyond the Dead Sea . . . . . 199
XI. The Lands of Jephthah and Og . . . . 226
XII. The Climate of Ancient Palestine . . 249
XIII. The Observations of an Archæologist . 283
XIV. The Fluctuations of the Dead Sea . . 303
XV. The Fallen Queen of the Desert . . . 337
XVI. Climate and History . . . . . 373
XVII. Ancient Palestine . . . . . 405
Appendix. Ancient Statements as to Meteorological Phenomena in Palestine . . 419
Index of Biblical References . . . . . 427
Index of Names and Subjects . . . . . 431

# ILLUSTRATIONS


COLORED MAP OF PALESTINE . . . . . *Frontispiece*

RELIEF MAP OF PALESTINE . . . . . 2

*Reproduced by permission of the Committee of the Palestine Exploration Fund. Photographed from copy of relief map in Boston Public Library.*

THRESHING-FLOOR OF SINJIL, LOOKING TOWARD SAMARIA . . . . . 16

SCANTY WHEAT-FIELDS AMONG THE ROCK TERRACES OF JUDEA . . . . . 16

DIAGRAMMATIC RELIEF MAP OF PALESTINE . . . 22

FIGURE 1. ANNUAL DISTRIBUTION OF RAINFALL AT JERUSALEM . . . . . 34

NATURAL BRIDGE AT AIN EL LABEN IN LEBANON . . 60

WOMAN WITH BABY AND CRADLE IN A VILLAGE OF PHILISTIA . . . . . 60

THE WILDERNESS OF JUDEA ABOVE EN-GEDI . . 100

GATHERING BEANS IN AN OLIVE GROVE IN THE SHEPHELAH . . . . . 100

THE ARABAH SOUTH OF THE DEAD SEA, LOOKING EAST TOWARD EDOM . . . . . 106

A WELL WORKED BY HORSE-POWER AT BEERSHEBA . 120

ARABS PLOUGHING FOR MILLET IN THE NEGEB . . 120

Mosque of El Aksa, Siloam and Judean Plateau looking South from the Top of the Mosque of Omar . . . . . 136

Women of Samaria at Sebastiyeh . . . . . 136

Figure 2. Highly generalized and idealized Geological Section of Palestine from North to South . . . . . 146

Harvesters beside a Stony Galilean Road . . 166

The Best Houses of Mejdel in the Plain of Gennesaret . . . . . 166

Ferry over the Jordan and Old Lake Deposits at Ed Damieh . . . . . 184

Palm Trees killed by a Recent Rise of the Dead Sea . . . . . 184

Women of Judea at the Moabite Ruins of Kastal . 210

Shepherds on the Borders of Gilead . . . . 210

Rock Theatre and Tombs at Petra, looking Northwest toward Main City . . . . . 222

Primitive Cave-dwellers of Gilead . . . . . 232

Oak Forest and Charcoal-burners in Gilead . . 232

Figure 3. Climatic Hypotheses . . . . . 252

Plan of Jerash . . . . . 278
*Reproduced from "Zeitschrift des deutschen Pälestinavereins," vol. xxv, 1902*

Carrying Home the Barley Harvest near Damascus 292

Fifth-century Church at Hawarin, made from the Ruins of Ancient Temples . . . . . 292

Strands of the Dead Sea, looking North from Wadi Zerka Ma'in . . . . . 308

Figure 4. The Dead Sea and the Ancient Boundary of Judah. After Clermont-Ganneau . . . 311
*Reproduced from "Recueil d'Archéologie Orientale," vol. v*

Figure 5. Approximate Climatic Fluctuations during the Christian Era . . . . . 327

Figure 6. Inscriptions found by Princeton Expeditions in Drier Portions of Syria. Arranged by Decades . . . . . 334

Damascus . . . . . 344
*Reproduced from Porter's "Five Years in Damascus"*

Palmyra . . . . . 344
*Reproduced from Porter's "Five Years in Damascus"*

Temple and Sepulchral Towers among the Ruins of Palmyra . . . . . 360

Figure 7. Approximate Climatic Fluctuations of the Historic Period . . . . . 403

Figure 8. Geological Cross-section of Southern Palestine, through Bethlehem. After Blanckenhorn . . . . . 424
*Reproduced from "Zeitschrift des deutschen Pälestinavereins"*

Figure 9. The Rainfall of Jerusalem, 1846–1908 425
*Plotted from Hilderscheid's figures in "Zeitschrift des deutschen Pälestinavereins," vol. xxv, 1902*

Sketch Map of Lands surrounding Palestine . . 426

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# Photo Relief Map of Palestine.


By George Armstrong.
(of the Survey Party)
Acting Secretary to the Fund.



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Scale.

JOPPA
ASHKELON
GAZA
THE DEAD SEA

# PALESTINE AND ITS TRANSFORMATION

## CHAPTER I

### THE HEART OF THE LAND

Iron is iron, no matter what its shape. Yet a bulky mass of pig-iron is very different from the revolving fly-wheel of an engine. Although the difference is due merely to the form or mould in which the material is cast, it is vastly important. A thousand years of casting good metal in angular moulds would never produce a circular fly-wheel. Even so with human nature. To be sure its powers of growth are infinitely removed from the capacities of iron for welding, bending, and polishing. Yet like molten metal it is poured forth upon the world. A part falls into the mould of the hungry desert, a part into the debilitating torrid zone, and other parts into every conceivable environment. The original material, with its living powers of mind and soul, may or may not be all alike. Some races may be endowed with unusual spiritual insight or mental vigor, just as special varieties of steel possess peculiar qualities because iron has been treated with nickel or chromium;

but the grade of the raw material is only half the story. The finest steel cast into rough, pitted cubes would be useless: the finest primitive races doomed to live always in the fever-stricken swamps of Africa would never emerge from savagery without some outside aid.

The correct interpretation of history demands first a knowledge of man's mental, moral, and spiritual qualities, that is, of the psychological character of human nature. Then it demands an understanding of his surroundings, or of the mould in which generation after generation has been cast. The chief of all moulding forces is geographic environment, — the form of the land where a man lives and obtains sustenance, the nature of the forests, swamps, or mountains to which he flees for refuge, and the character of the climate which determines his mode of life and fills him with lassitude or energy. The great Hebrew conceptions of God, and of the relation of God to man, and man to his fellow, might possibly have been moulded under conditions other than those of Palestine. We can have little doubt, however, that under such circumstances they would have assumed a form distinctly different from that which has gone forth from Judea to dominate the lands of the West.

In Palestine, as perhaps nowhere else, the power of nature in moulding human actions and thoughts is plainly visible. There, too, in strangest

contrast, faith and the power of ideals have triumphed more gloriously than in any other land. So strongly do these opposed aspects of history impress themselves upon the student, that more than its share of importance is often assigned to each, according as a man's mind is scientific or idealistic in bent. Hitherto Palestine has been studied chiefly by men filled with the idealistic spirit, that is, by those whose interest centres in the religious significance of the land or in its contribution to thought without respect to the relation of that thought to nature. Many authors, to be sure, have discussed the purely physical aspects of Palestine; but few have avowedly set themselves the task of explaining step by step the process by which geologic structure, topographic form, and the present and past nature of the climate have shaped man's progress, moulded his history, and thus played an incalculable part in the development of a system of thought which could scarcely have arisen under any other physical circumstances. The hope of aiding in the comprehension of this complex sequence, and of showing how natural environment prepared the way for the teachings of Christ, was the purpose of the Yale Expedition whose work forms the basis of this volume.

We went to the East with the firm purpose of steering a coolly scientific middle course between the gushing enthusiasm and the cynical disap-

pointment into which writers on Palestine are prone to fall. For four inspiring months in the spring of 1909 Mr. Clarence F. Graham and myself travelled back and forth in Palestine and its border lands. By a series of circuits and zigzags we saw at least a sample of each of the varied geographic types which nature has thrown together in this unique little country. As we traversed its highly diverse provinces, we were continually amazed to find how minutely geologic structure is reflected, not only in topography and climate, but also in history. We were surprised also to discover how closely historic progress and decline appear to have synchronized with changes in climate. At the end of our journey we found ourselves enthusiastic, not over the beauty of the country, for on the whole it is not beautiful, but over the marvellous way in which a knowledge of the physical geography of the land explains its eventful history, and lends unexpected interest to even the simplest of the old Bible stories.

Two coördinate subjects form the theme of this volume, topography and climate. The first half of the book is devoted largely to a description of the appearance and form of Palestine and to a consideration of the manner in which the peculiar geological structure of the country has given rise to certain strongly marked characteristics, whose influence can be traced throughout history. The

second half deals with the climate of the country, or, more specifically, with the changes to which climate has been subject. In the first half our attention will be closely confined to Palestine; in the second, we shall be forced to include many surrounding regions, and to review the history of Egypt and Babylonia in order to comprehend that of Palestine.

The character of Judea as an isolated plateau is the most important topographic feature of Palestine. This is no new idea, but it is one whose full significance is rarely appreciated. It explains much of Hebrew history. Judea is not only isolated from the rest of the country, but radically different from any other part in structure, in appearance, and in influence upon man. Because of Judea's peculiar physical form, its people preserved the true spirit of the Hebrew religion when the other Israelites fell away. Even Samaria, the province most closely allied to Judea, is notably different. So important is this difference and so far-reaching its results, that we may well begin our study of the land by a description of the contrasted features of the two as we saw them on one of our journeys.

Late in June we were returning to Jerusalem to compare the aspect of Judea during the long summer drought with our remembrance of it in March at the end of the rainy season. Leaving Galilee and the green plain of Esdraelon, we climbed a

short ascent of gray limestone to Jezreel, in northern Samaria. There the Philistines defeated Saul so wofully that he fell on his sword and died. There Naboth lived, whose pleasant vineyard was his undoing in the days when Jezebel ruled Ahab and Ahab ruled Israel. Farther south our route led close to Dothan, where Joseph's brothers cast him into a pit, and drew him forth to sell to Midianite merchants on the way to Egypt. That the first Biblical sites upon which we came in Samaria should be associated with foreign influences is typical of the province. From the earliest times the form of the land has caused it to be full of aliens such as the cruel princess from the trafficking Sidonians, and the callous traders bound from across Jordan to Egypt.

To eyes wonted to the impoverished aspect of nature in lands not blessed with summer rain, Samaria seems a pleasant little province. Small fertile plains lie in basins among low hills or treeless mountains with rounded heads, always rocky, rarely rugged. On the slopes where hill meets plain, drab villages of adobe or stone cluster among terraces, some artificial, some natural. In late June we found part of the terraces covered with sere dead grass; but more bore the prosperous look of grainfields newly reaped or soon to be harvested, and not a few were hidden under a dark mantle of olive groves. The unterraced portions of the hillsides were pale yellow with ripe

wheat, or glaring white where the chalky soil lay naked. At the foot of the hills broader fields of ripe grain shimmered in the summer sun, relieved by pure green patches of sesame and millet. The deep reddish brown tint of fallow squares, newly ploughed, proclaimed the richness of a soil mellowed by ages of weathering during its progress from the hillsides to the plains.

Toward the end of the day's ride we came upon delightful bits of scenery. At the head of the valley of Silet ed Dahr, three or four miles north of the ancient city of Samaria, we looked down westward into a beautiful amphitheatre of tree-clad slopes with a village in the centre, and a small cultivated plain opening itself to the sun where the stage of the old Greek theatres should be. Close to the village the light green color of the trees proclaimed that they were apricots, while darker patches were figs, set as near to the houses as possible to preserve the tempting fruit from pilferers. Farther away the great amphitheatre was dusky with vigorous olive groves, among whose stony paths we met the women of the East bearing on their heads the inevitable red jars for water. In spite of unprepossessing features, their erect carriage and graceful gait rendered them attractive, at least from a distance. All wore dresses made with bands of red a foot wide on a ground of blue or white and passing diagonally from the shoulders around the waist

to the skirt. The picturesque costume looked best on those who eased the strain of the heavy red jars by raising their brown arms and clasping the hands behind the head.

The chief towns of Samaria are not located in the most typical portions of the province. The impressive Roman ruins of Sebastiyeh, the modern representative of Samaria, do not lie in a hollow, but on a hilltop, looking seaward with a splendid view of the Mediterranean in the distance and charming olive groves in the valleys at one's feet. Shechem, the modern Nablus, is much more nearly typical than Sebastiyeh, for it lies in a valley, but the valley is unusually narrow for Samaria and contains an uncommon amount of running water. Where the valley broadens west of the city, pleasant gardens and fertile fields respond to the abundant springs. The city itself is a strangely contracted place, wedged in between the rounded mountains of Ebal and Gerizim, whose lower slopes are covered with rocky terraces set with hedges of cactus. That so constricted a town should be fanatical seems appropriate. In search of the other members of the caravan I traversed the long covered street upon which the bazaars are strung. As I entered, small boys threw stones at me and shouted, "Giaour, giaour!" (Infidel, infidel.) A man in a green turban, a descendant of the Prophet Mohammed, sourly motioned to me to

dismount. Another in a white surplice and red turban, a member of the diminished sect of the Samaritans, stroked his long gray beard and did likewise. I thought they were fanatics who disliked to see a Christian ride through their dim, narrow streets. In a moment, however, my horse began to slip dangerously on the uneven limestone pavement, and I perceived that the men of Shechem were wise in their surly advice.

South of Shechem, although the mountains rise higher than to the north, the scenery is of the true Samaritan type. The roadways traverse basins, plains, and valleys, for the mountains are mere obstructions, — something to be gone around, not crossed. The villages are not on the hills, but snugly set in the valleys.

The peculiarities of Samaritan scenery are due to geological structure. Where hard limestone has been heaved upward, hills and mountains prevail, but throughout most of the province the hard strata have been bent downward, and softer rocks allow the formation of valleys and plains. In spite of the mountains the province can be easily traversed in almost any direction. Hence foreign influences have continually entered. Hence, also, Samaria is relatively fertile but not particularly inspiring. There a man may live all his life in peace and plenty without severe exertion. The heat of summer in the sunny plains deters him from working harder than necessity

demands. The winter, with its cool air, spurs him to industry. One would expect to find in Samaria a race of unimaginative plodders, working hard sometimes, but rarely keyed up by the pressure of actual want. Only a few places, such as the city of Samaria and the border towns looking seaward or Jordanward, are fitted to inspire a man and make him long great longings. The mountains are of the rounded, open kind which can be seen entirely from below. A man might dwell among them threescore years and ten, and never feel the impulse to climb for the sake of climbing. The life of Samaria is in its open, accessible plains.

Judea is utterly different. Toward night on the day of our ride from Samaria through Shechem, we climbed a long steep slope, and came out on the top of the world. A change had come over the geological structure of the country. The rocks were harder than hitherto, and lay horizontally. The valleys were correspondingly narrower, the paths stonier, and the fields less fertile. Moreover, the villages and fields were no longer in the lowlands, but up on the heights. Leaving the main wagon road, we struck into a path which seemed the stoniest of all possible paths; but soon, as we bore off to the southwest and approached the village of Sinjil, it became far worse. Walls made of blocks of rough limestone bordered it on either side; and the path itself was a loose mass of angular stones from two to six inches in diameter. For

ages the villagers have painstakingly picked the stones from the fields and tossed them into the road. Climbing the last steep ascent we came to the stone village. On the top of a dunghill, twenty feet high, half a dozen men were standing, while two or three squatted comfortably like frogs. Their white cotton trousers and tunics, soiled and worn, appeared too thin for the cool night air; each man had swung over his shoulders a woollen abba or long dark cloak in pleasing contrast with the white garments beneath it. Women whose faces were disfigured with tattooed patterns of stars, circles, or simple lines of dark blue spots, passed by with water jars, or came to the doors to peer out in the intervals when the evening porridge did not require attention. Their dresses were straight gowns of a blue as deep as that of the tattooing on their faces; but red girdles and the white cotton shawls over their heads added a pleasing variety of color. Sitting on the dry grass which covered the flat domes of the neighboring houses, some girls dressed in white let red shawls slip from their black hair to their shoulders. Occasionally they turned from watching the strangers to reprove the saucy little boys who scampered about in striped tunics of various colors and tossed into the air round red caps glittering with gilt bangles.

A handsome, white-bearded man took charge of us, and led the way through a narrow alley up the

hill to his house. By an outside staircase we ascended past the lower story, where wiry little cows, solemn oxen, and braying donkeys were ensconced, and were introduced to our lodgings. The people of Sinjil are Mohammedans, but do not strictly observe the Law. The women, here, as in most parts of Palestine outside the cities, make no attempt to veil their faces; and our hostess did not hesitate to talk freely with our servants. We found her in an open porch half enclosed by the thick leaves and hanging clusters of a flourishing grapevine. Behind the porch a clean, white-washed room of adobe was put at our disposal, although we preferred to follow our usual custom and sleep in the open air on the roof.

As we looked abroad from our porch we realized how different Judea is from Samaria, or any other part of Palestine. Close at hand tall hedges of prickly pear enclosed small gardens where tomatoes, eggplant, summer squashes, and cucumbers were carefully cherished. Among the gardens fig trees flourished, with here and there a pomegranate tree breaking into crimson bloom. A little farther away, but still close at hand, round watch-towers made of rough limestone stood in the midst of green vineyards. The surrounding walls of stone were capped with thorn bushes set in dry adobe to keep out, not only boys and men, but foxes and other animals with a sweet tooth. Be-

tween the walls belated husbandmen were driving donkeys, laden with sheaves which concealed all of the animals except their heads and ears. The beasts were bound for the threshing-floor just below the village, where a few muzzled oxen or donkeys, tied three abreast, were still patiently circling round and round to tread out the grain. Beyond the vineyards and the threshing-floor lay the cultivated land, not in smooth lowland plains or on low gentle slopes as in Samaria, but among the hills on every flat space of sufficient size, perchance in a valley below a pleasing olive grove, or it might be on a hillside. Back of this scene so full of evidences of patient industry, the Judean hills rose rounded, gray, and rocky, a virile landscape, unpromising and yet attractive.

The attraction of the view lay in its spaciousness. Southward the distant prospect was hidden by the height on which the village lies, but eastward, northward, and westward the sterile hills of naked rock did not bound the field of vision. In each case something lay beyond. To the east, across the hidden depression of the deep Jordan Valley, we could see the highlands of Gilead, — a band of deepest blue beneath the gracious sunset arch of pink and purple which in lands of drought makes separation between the shadows of night and the light of day. Northward Mount Gerizim and Mount Ebal merged in a flat-topped mass,

flanked by lower hills of softer aspect than those of rugged Judea. Westward the rich glow of a golden sunset hid all the view save the purple hills of the northern end of the Shephelah, seen to the left through a gap in the nearer domes of rock. We turned from the view at the call of our Moslem host, a stout householder in a white tunic, blue girdle, and turban of banded red and white. He served us with unsweetened coffee flavored with cardamom seeds. Then pointing westward, he exclaimed, "El Bahr, el bahr!" (The Sea, the sea.) "Don't you see it out there? We see it all the time, and Jaffa, and the steamers passing to and fro." Beneath a sky of dim old gold we saw the dark blue line of the Mediterranean. As we watched it, cool breezes came out of the west; the damp of summer dew was in the air. A sense of space and freedom enveloped us, — of height and openness, and of being above the rest of the world and away from it.

The sensation was wholly different from what we had felt in the low villages of Samaria, or in those of the plains east of the Jordan. Something of it we had experienced in Hunin and Safed in upper Galilee, or in the mountain towns of Syria which look down upon the sea; but in all those places something else rises higher and more commanding than any village. In Judea, on the other hand, many a village and almost every hilltop brings with it the sense of space and of being at

THRESHING-FLOOR OF SINJIL, LOOKING TOWARD SAMARIA

SCANTY WHEAT-FIELDS AMONG THE ROCK TERRACES OF JUDEA

the top of everything. I felt it south of Hebron, at Jutta, — linguistically unrelated to Judea, — at Dahariyeh, southwest of Hebron, and at Taiyibeh, north of Jerusalem, as well as Sinjil. Scores of other villages give rise to the same feeling. Perhaps it is in part imagination, but my companion felt likewise. It cannot be wholly imagination, for our host evidently loved the view; and few men are so dull that they fail to be thrilled with some slight stir of feeling when they stand looking down on all the world at sunset. And so it seems that generations of life in such a land must have played a part in giving to the Jews the strong idealism which gradually evolved among them. Judea, far more than any other part of Palestine, gave to the world the great Jewish and Christian religions and indirectly much of Mohammedanism. Judea, to the student of scientific geography, is unique among the countries of the world. Only a land of its peculiar geological structure could stand thus as an island of refuge shut off from all the districts round about, and ever looking down upon them. Neither rich nor beautiful, it is yet inspiring. No wonder the Jews loved it; no wonder the phrase "going up to Jerusalem" meant much, for even in a physical sense the inhabitants of the rest of Palestine were obliged to go up to reach Judea. When they had gone up, they looked abroad and felt that they were separate from the rest of the world. Thus the peculiar physical

structure of Judea and its comparative isolation and uplifted position in the midst of Palestine constitute the central theme in the study of the influence of the land upon the people. Judea is the heart of Palestine.

## CHAPTER II

### THE LAND AS A WHOLE

JUDEA may be the heart of Palestine. It is not the whole. Many important characteristics pertain to the entire country. These must be understood before the details can be appreciated. To readers already familiar with the physical geography of the land most of what is said in this chapter is familiar. It is included here in order to present a complete picture to which reference may be made later in dealing with special regions.

The small size of Palestine has always been a theme for wonder. Seventy or eighty miles is nothing in most countries. It is everything in Palestine. In America or Europe, having traversed the distance in two hours, we look up in surprise from our magazines to find our destination at hand. In Palestine after travelling eighty miles, which generally takes three days, one is amazed to discover that he has seen so much of the country, that he has grasped its most essential features, and has thereby enriched his vision of history and of the evolution of human thought by the opening of a most fascinating vista.

England is a small country, yet no one would feel that a ride of seventy or eighty miles from

London northwestward to Rugby, and another of equal length southwestward from London to the Isle of Wight, had given him a sight of all the essential parts. We should laugh at a man who thought that, by travelling from Rouen eastward to Paris and northward to St. Quentin or southward to Orleans, he had become acquainted with France. Palestine, however, is so small that a ride of equal length from the Mediterranean coast eastward through Jerusalem and across the Jordan Valley to the plateau of Moab, and then back to Jerusalem and northward through Samaria to the Sea of Galilee, is sufficient to give a good idea of the country as a whole. Palestine has rightly been called the "least of all lands." Had it been larger, its influence might have been less.

The smallness of Palestine becomes still more remarkable when we consider how extremely varied are the regions found within its borders, and how diminutive the district which has really been important.

A journey from Philadelphia to New York, and then up the Hudson to Poughkeepsie, agrees in length with the one just outlined in Palestine. It is a pleasant ride, which a man might take again and again and still enjoy, but it is not notable for its variety. It includes the smooth lowland of the Delaware, the insignificant hills of western New Jersey, the plains and marshes of the northeastern part of the state, the drowned valley of

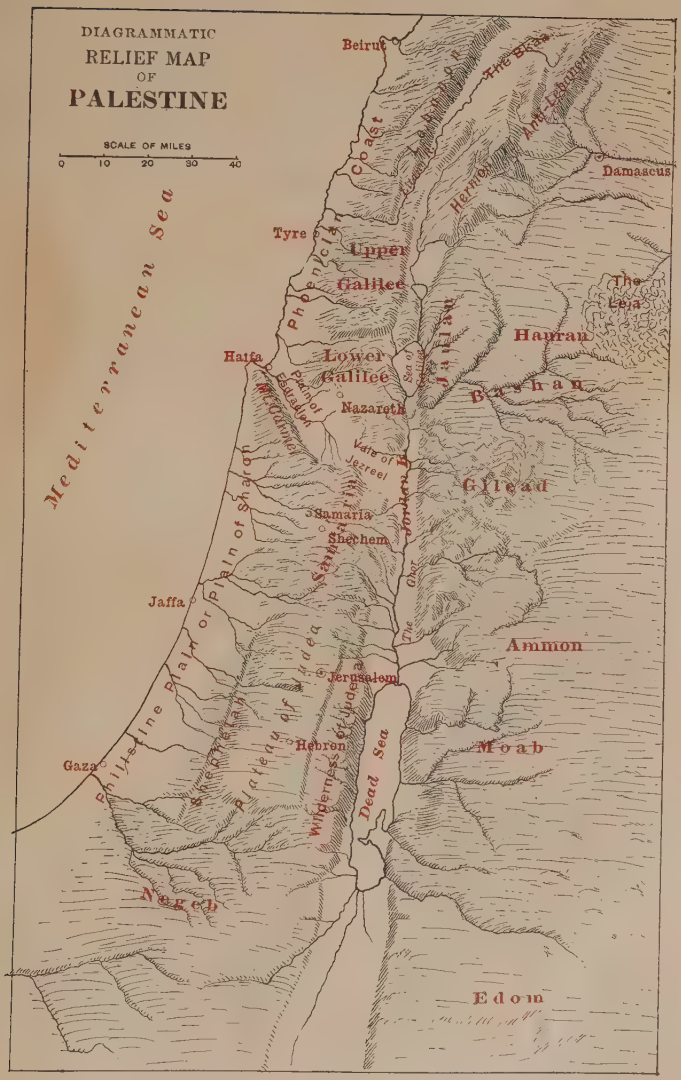
the Hudson, and the Catskill Mountains, which present the New England type of scenery. No great and sudden contrasts fire the imagination. The impression upon the traveller is of unity rather than diversity. All the country is green. Everywhere nature permits man to live in essentially the same way, and to carry on essentially the same occupations. It would be necessary to travel two thousand miles to New Mexico or Utah to find a district as different from southern New York as Mount Carmel is from the desert seventy-five miles away around Jericho.

California is the only part of the United States which approaches Palestine in variety of scenery. A ride of seventy or eighty miles from San Francisco inland to Sacramento begins on the cool, foggy coast with its low summer temperature, and splendid redwood trees among the mountains. Then come the drier, more grassy mountains east of the great bay, and finally the hot, semi-arid inner valley. Yet even here the degree of variety is less than in Palestine. In California, as one travels across the mountains, the various types succeed one another rapidly, but parallel to the ranges the scenery varies little for hundreds of miles. In Palestine, on the contrary, the changes are rapid whether one travels parallel to the mountains in a north or south direction, or athwart them east or west.

Even in Southern California, the portion of the

world which above all others resembles Palestine, great variety and sudden contrasts are by no means so numerous as in the land of the Hebrews. In the fifty miles from Los Angeles northeastward across the Sierra Madre Mountains to the Mohave Desert the changes are as marked and rapid as those in the same distance from the Mediterranean to the Dead Sea. The immediate coast of California is cooler than that of Palestine because of the great size and free movement of the Pacific Ocean, but the orange groves at the foot of the mountains correspond to those of Jaffa, the grainfields in the upland valleys are not unlike those of Judea, and the Mohave Desert at the eastern base of the mountains is of the same type as that which surrounds the Dead Sea. Farther inland the resemblance diminishes, for in Southern California the desert continues eastward indefinitely, while that of Palestine is interrupted by the peculiar little strip of verdure which has made the name of Moab famous. Only to the east of Moab does the great desert of Arabia begin. There monotonous uniformity succeeds infinite variety.

The remarkable variety of Palestine is due partly to the physical form of the land and partly to the climate. The form may be understood by comparing the topography shown in the photographic map at the beginning of this volume with the diagrammatic sketch on the opposite page. One or two million years ago in the middle of


DIAGRAMMATIC
RELIEF MAP
OF
PALESTINE
SCALE OF MILES
0 10 20 30 40
Mediterranean Sea
Beirut
Damascus
Tyre
Upper
Galilee
Phoenician Coast
Lebanon
The Bkaa
Hermon
Anti-Lebanon
The Leja
Hauran
Jaulan
Bashan
Haifa
Lower
Galilee
Plain of Esdraelon
Nazareth
Vale of Jezreel
Gilead
Samaria
Shechem
Jordan R.
Jaffa
Ammon
Jerusalem
Hebron
Moab
Gaza
Philistine Plain or Plain of Sharon
Plateau of Judea
Wilderness of Judea
Dead Sea
Negeb
Edom

the Tertiary era, the last great geological age, a vast warping and uplifting of the earth's crust took place for hundreds of miles along the eastern coast of the Mediterranean Sea. The movement did not occur all at once, nor with perfect regularity. The whole process probably was not completed until almost the present time, and may not be finished yet. It was complicated by minor movements, some of which were parallel to the main uplift and some at an angle to it. Without attempting to say just when or how each movement took place, let us examine their result. In the first place let us conceive of the main uplift in its simplest form. From the peninsula of Sinai on the south to the northeastern corner of the Mediterranean Sea five hundred miles away to the north, a great arching up of the earth's crust took place, steep toward the west, flat on the top, and of gentle slope toward the east. At the north the movement amounted to six or eight thousand feet. In the centre it was greater, so that Lebanon, Anti-Lebanon, and Hermon rise nine or ten thousand feet above the Mediterranean. Farther south the uplift diminished to only three or four thousand feet in Judea and less in the Negeb. Along the top of this broad flat ridge of solid rock a remarkable dislocation occurred, a subsidence of the centre of the arch from end to end. In the north a narrow belt was bent sharply down as one might bend a sheet of paper, forming the valley of

the Orontes, and the Bkaa, five thousand feet or more below the heights on either side. Farther south in Palestine the bending continued, but in the latitude of Jerusalem it took the form of a fracture on one or both sides, and the central wedge dropped six thousand feet to form the Ghor, the deep depression in which lies the Dead Sea. These remarkable movements divided Palestine into three main strips running north and south. The most important strip is the western highland, or plateau, with a moderately steep slope on the west, a very steep descent on the east, and a flat top. Eastward lies the Jordan-Arabah depression, or Ghor, steep on either side, flat on the bottom, below sea-level throughout practically all Palestine, — a hot and most inhospitable rift in the earth's crust. Beyond it a sharp ascent of from three to five thousand feet leads up to the third strip, the eastern highland, broad and flat, and sloping gently away from Palestine to the Syrian desert.

The map shows that the three main strips, which form, as it were, the huge backbone of Syria, with a deep hollow along its centre, are flanked by two other important regions, the vast desert of Syria on the east and the coastal plain of the Philistines on the west. Imperceptibly the eastern highland descends into the limitless rolling desert, grassy on the edges, but dry and parched farther east. Most of the surface con-

sists of flinty gravel, with little sand except in regions far southeast of Syria. Low hills of limestone rise at intervals near the borders, but the centre is level for scores of miles. The ordinary Israelite knew nothing of this dreary land save by report, but it was always a menace to him. Out of its unconquered wastes his own ancestors were cast forth; in its depths dwelt the ancestors of races who were to possess the land when the Children of Israel had been cruelly expelled.

On the other side of Palestine, seaward, lies a region quite different from the desert, — the fertile, well-watered strip of the Philistine coastal plain. North of Carmel it disappears, cut off by the fault of Esdraelon. At most it is only fifteen miles wide and a hundred long. There Samson tied firebrands to foxes' tails to burn the standing crops of the Philistines, for its fields were most productive. Only in the reigns of David and Solomon did Hebrew kings really rule the plain. Yet, in a way, it was an essential part of Palestine. Sometimes it was a danger, often a protection to Judea; for along its smooth roads armies could march and countermarch without being tempted to ascend the inhospitable heights where the world's chief religions were in the making.

Except for the coastal plain, the strips of Syria, as has already been indicated, resemble those of California. The resemblance is so important that we shall sum it up again. Taking Syria as a whole,

the western highland corresponds to the California Coast Range, although the American mountains have no plateaus corresponding to Palestine. In the Syrian portion of the range, that is, in Lebanon, great natural bridges, magnificent springs, and giant cedars remaining from forests that once were dense, are comparable with the superb scenery and giant redwoods of California. The Syrian highland is less fertile and verdant than the American Coast Range because it lies farther south, and because the Pacific exceeds the Mediterranean in size. Formerly, however, the difference in climate was less noticeable. The Jordan-Arabah depression, second of the strips of Syria, is much lower and narrower than the great valley which extends for four hundred miles from far north of Sacramento through the San Joaquin country and past Lake Tulare to Bakersfield. The two are alike, however, in their dry climate and sunny skies; and the salt lakes of Kern County are of the same nature as the Dead Sea. In similar fashion the Sierra Nevada Mountains correspond to the eastern highlands of Syria, and the arid regions of Nevada and Utah to the Syrian desert. The chief differences are, first, that the physical features of America are on a far larger scale than those of Syria, and especially than those of Palestine, and, second, that they are less subject to variation from north to south.

The major features of Palestine, as we have

seen, are determined by lines of crustal movement running north and south. The minor features depend on similar lines of flexure or faulting running in general northwest and southeast, but often swinging nearly to east and west. They can be clearly understood from the idealized diagrammatic map opposite page 22. Between Hebron and Beersheba the earth's crust has been bent in such fashion that the region to the south is depressed nearly two thousand feet below the plateau of Judea. The line of bending forms the real southern limit of Palestine; for the Negeb, as the country to the south is called, is so low and flat that the Israelites were early driven out by the people of the desert. This southern line of flexure, unlike those farther north, does not extend across the Ghor. On the contrary, beyond the Dead Sea the eastern highland rises southward. Being high, it is relatively rainy, and is dotted with a few scattered villages for sixty miles beyond the limit of permanent habitation in the low region directly to the west.

The next of the east and west lines in Palestine separates Samaria from Judea in the western highland, and Gilead from Moab in the eastern. Looking eastward from Judea toward Moab and Gilead, the skyline is almost level in Moab, but to the left in the more northerly province of Gilead it arches gently upward into the flat-topped heights whither Absalom fled to his death among

the oaks. Looking from Gilead westward, a similar difference is discerned between Judea and Samaria. The skyline of Judea forms an almost unbroken horizontal line; that of Samaria, much more pleasing in appearance, rises and falls in the graceful domes of low mountains. Geologically, as we have already seen, Judea, with its horizontal strata, differs essentially from Samaria with its slight bendings and warpings; Moab and Gilead differ similarly. A mere difference in the angle at which the limestone rocks happen to lie seems a slight matter. Yet to it is due in large measure the fact that Samaria was a kingdom apart from Judah, and that Gilead was the country through which Christ was passing on his way to Jerusalem when he blessed the children. Unreasonable as it may seem, the same type of geological structure caused the Samaritans of the time of Christ to be despised by the Jews, and caused the people of Gilead to be stanch upholders of Judaism, as we shall later see in detail.

Third among our east and west lines comes the fault of Esdraelon, a break in the earth's crust extending from Carmel southeastward to the Jordan depression, and continued on the other side as a bending of the crust. In western Palestine an upward movement of the rocks just south of the fault gave rise to the heights of Carmel and Gilboa. To the north the land was lowered one or

two thousand feet, thereby allowing the formation of the plain of Esdraelon and the Vale of Jezreel, the easiest of all highroads across Palestine. Southern Galilee, also, was lowered somewhat, and thereby rendered relatively fertile and open to outside influences. East of Jordan the downward warping of the crust on the north of this line of movement sharply divided the plains of Bashan, or the Hauran, as the region is now called, from the wooded heights of Gilead. Thus this line, like the one to the south of it, was a boundary between provinces of diverse history, Gilead and Bashan on the east, Samaria and Galilee on the west.

The last of the east and west lines separates Galilee and all Palestine on the south from Syria and the country of Damascus on the north. Although not a sharp line like the fault of Esdraelon, it is as clearly defined as the lines between Samaria and Judea, or Judea and the Negeb. It marks the change from the low plateaus of Palestine to the lofty mountain groups of Lebanon and Hermon. Near it is born the Jordan. Here, too, the Litany, the picturesque Syrian stream which flows in the hollow between Lebanon and Hermon, turns westward, and cuts across the western highland in a fine gorge spanned by a limestone bridge of nature's own workmanship. This northern line is the last of the bars which, as it were, gridiron the narrow north and south strips of Palestine

into little rectangles or quadrilaterals, giving to the country that wonderful diversity of physical form which is among its most precious assets.

A realization of the nature of the many little sections into which Palestine is partitioned explains how Judea could remain so separate from other nations when Palestine was the chief highway of the world. The greatest of ancient trade routes led from Egypt, which then stood for the West, to Mesopotamia, Babylonia, Persia, and the remoter lands of the East. Not only the trade, but the armies of the world traversed these routes again and again. To journey from Egypt to the East without passing through Palestine was in those days practically impossible. On the southern edge of that country, as may be seen on the map serving as frontispiece, a great route, now all unused, led eastward from Egypt across the midst of the desert to Babylonia and the Persian Gulf. We know little of it in the earliest days, but when the Romans ruled the land it was thronged with caravans. One branch came from Egypt to the rock city of Petra; another passed across the Negeb from Gaza to the same point. From Petra a road led south to the head of the Persian Gulf and another eastward across the desert. A far more important route led up the coast from Egypt through the plain of Philistia to the inner end of the mountains of Carmel in northern Samaria, and so by way of the Plain of

Esdraelon to the low country of Galilee. Thence it crossed the wheat-fields and plains of the Hauran to Damascus and the lands, not only of the East, but also of the North in the days when the Hittites were great. All other roads from east to west or north to south were difficult. To reach Damascus or the other centres of trade, no caravan would think of climbing the rocky valleys to Judea, and following its crooked trails, or scrambling down the rough roads on the eastern side into the stifling valley of the Jordan, toiling wearisomely out again on the other side, and then circling the hills of Gilead. Why should a caravan make so toilsome a journey when it was possible to traverse the smooth road through the fertile plain of the Philistines, cross the insignificant divide at the eastern end of Carmel, and pursue an easy way past the southern end of the Sea of Galilee, with nothing but low hills and rich plains to bar its progress? Farther north in Syria the roads across Lebanon and Anti-Lebanon or Hermon are more difficult than those across Judea. Naturally, therefore, although some trade followed the level desert road to the south of Judea, the major part sought the comfortable route along the coastal plain to Esdraelon. Thus the physical form of the land caused abundant traffic, with all its manifold influences, to pass through Palestine; Samaria, lying on the line of the main roads, became almost an outpost of heathendom;

while Judea, perched apart between two streams of trade, was able to resist corrupting influences.

The topographic diversity of Palestine is only one of the two great factors which together explain so much of the history of this unique land. If the country were located in the latitude of Germany and in the middle of a continent, its diversity of physical form would be far less important than is now the case. The land is scarcely more varied in form than is southwestern Germany; indeed, less so, if we include a portion of Switzerland with the adjacent parts of Germany. The sunken valley or "graben" of the Rhine, extending nearly two hundred miles from Basel to Mainz, is of precisely the same type as the depression in which lie the Jordan and the Dead Sea. Although not so extensive or deep, it is well-nigh as remarkable. The plateaus of the Vosges in Alsace and the Hardt in the Palatinate may well be compared with those of Judea, Samaria, and Galilee in a corresponding location on the west side of the Jordan; and those of the Black Forest and Odenwald, on the east of the Rhine, correspond in many respects to Moab, Gilead, and the rest of the country east of the Jordan. The Sea of Galilee, save as the theatre of the preaching of Christ, and subsequently as the scene of most striking changes, is far surpassed by Lake Constance, through which the upper Rhine flows, just as the Jordan flows through the lake of Tiberias. For beauty, grandeur, and variety of

scenery, as well as for mere size, the Alps are incomparably superior to the relatively tame range of Hermon, and even to beautiful Lebanon. Yet in spite of all this, southwestern Germany and the neighboring parts of Switzerland do not begin to be so varied, or to exert upon their inhabitants influences so diverse as those of Palestine. The cause of this difference is found in the climate of the two countries.

Along the Syrian coasts palm trees rustle in the wind; in the lowlands the prickly pear, brought by the Spaniards from old Mexico, spreads out its disjointed, spiny hands and opens its red or yellow blossoms; in the hot depression of the Jordan Valley the swish of green banana leaves is heard above the gurgle of the little brooks which vivify bits of the desert. These plants, together with the olive, proclaim that the climate of Palestine is preëminently sub-tropical. Germany, on the contrary, enjoys the temperate climate characteristic of the zone of prevailing westerly winds. The southernmost point of Europe, Punta Morroqui near Gibraltar, lies in latitude 36°, more than three degrees north of the Sea of Galilee, and almost as far north as the northeastern corner of the Mediterranean. With the exception of Florida, the southern half of the states of Louisiana and Texas, and a narrow strip on the south side of Georgia, Alabama, and Mississippi, no part of the United States lies so far

south as Jerusalem. These regions, however, do not possess a sub-tropical climate in the technical sense, for they lie on the eastern side of a continent. In their latitude, 25° to 32° N., the trade winds, blowing from the east, bring abundant rain in summer, while in winter, just as in the more northern parts of the United States or in Europe, cyclonic storms travelling from the west bring sufficient rain. Palestine, on the contrary, lies on the western side of the continent, where the prevailing summer movement of the air is not from the moist sea, but from the dry land. Hence no rain falls for five or six months in summer, as is graphically illustrated in the accompanying diagram.

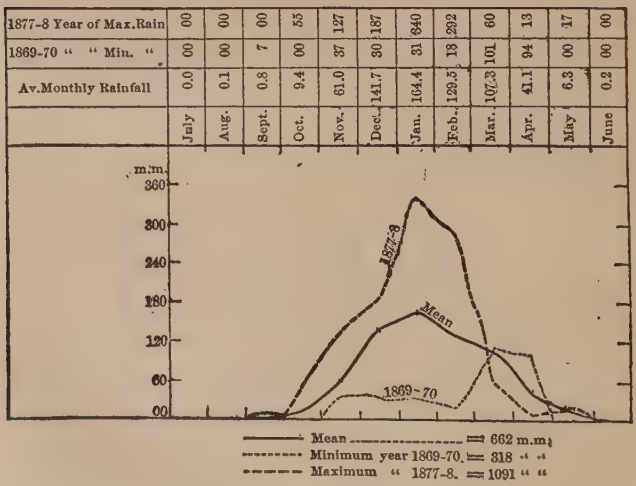



FIGURE 1.

Annual Distribution of Rainfall at Jerusalem.

Of the average annual total of 662 millimetres, or 26 inches, only two and a half per cent, or 0.66 inches, falls during the six months from May to October inclusive. The summer months have no more rain in the moistest years, such as 1877–78 when 42.95 inches fell, than in extremely dry years, such as 1869–70 when the total precipitation was only 12.5 inches. The "former" and "latter" rains of the Bible, as is well known, do not refer to separate seasons of precipitation, but merely to the first heavy down-pours in November and December, and to the last good rains in March or April.

In respect to climate, as well as in other respects, Southern California is the region with which Palestine should be compared. So far as the continent as a whole is concerned, the two districts lie in corresponding positions and their latitude is almost the same. The southern boundary of California lies thirty-two and a half and Los Angeles thirty-four degrees north of the equator. The latitude of Jerusalem is thirty-one and a half degrees north, and the whole of Palestine is included between thirty-one and thirty-three and a half. Because of low latitude the climate of Palestine is warm, and in the lowlands enervating; for the Mediterranean, being small and land-locked, is easily warmed by the sun, but not easily cooled by the inflow of water from the main ocean. Hence it does not temper the air

as does a vast body of water like the Pacific, and along its shores for many months each year the damp heat precludes any great activity of body or mind. Thus the highlands, such as Judea, from twenty-five hundred to three thousand feet above the sea, are the only regions fitted to be the home of a really vigorous race.

The sub-tropical climate of Palestine tends to increase diversity in another respect. The rainfall of more northern countries is derived largely from cyclonic storms which move steadily forward and deposit moisture in spite of topographic hindrances. In Palestine, on the contrary, the rain is derived almost entirely from winds blowing in from the Mediterranean Sea; for those from other directions come from great expanses of dry land which furnish no opportunity to absorb moisture. As we shall discuss this subject more fully later, suffice it to say that the westerly winds deposit moisture as they rise to surmount the plateaus, but cease to do so when they descend on the eastern side. Hence the amount of rainfall varies greatly in short distances. Where the main slope of the land is toward the west, rain falls in relative abundance. Where it is toward the east, deserts occur. Accordingly the fertile land of Palestine is limited to the western slope and to the summit of the western highland, and to the corresponding portions of the eastern highland. All the rest is desert. Palestine is a mere fringe

of verdure on the edge of the great desert, a strip of sown land on the borders of the waste.

Because of the juxtaposition of the desert and the sown, Palestine has always been subject to invasion by the wandering tribes of Arabia. In most parts of that forsaken land life is impossible except for nomads who depend on camels and sheep, and wander from place to place. The failure of the scanty rains of winter prevents the growth of grass for the animals; and perforce the Arabs must move elsewhere. The green strip on the edge of the desert offers the only available refuge in times of drought. Hence the Arabs invade it to the discomfiture of the settled inhabitants. The spring of 1909 was unusually dry. As we journeyed through Moab east of the Dead Sea, we found that the Arabs had left their customary grazing grounds for lack of grass and water. From the eastern desert they had invaded the grainfields of Moab. On the south, for the same cause, they had come up into the plain of the Philistines between Gaza and Joppa. With the contempt of warlike nomads for peaceful peasants, they permitted their sheep and camels to fatten on the scanty crops of the villagers. The poor farmers drove the animals out; and occasionally some man more bold or more angry than his fellows shot an Arab; but the settled folk are always at a disadvantage. The farmer must live in one place and can readily be found by the

avenger of blood, while the nomad wanders no man knows whither, in places where the man of the fields dares not come for vengeance. Thus it has always been. Down through the ages the fertile lands bordering the desert have been overrun by the Arabs whenever hunger or pressure of numbers has made their hard life still harder, — too hard to endure. Moab and the South have been overrun scores of times, and the rest of the land has sometimes been swept by invading hosts from the wilderness. Even secluded Judea has not been free; more than once, since first the desert cast forth the early Israelites, she has been overwhelmed, and new tribes have taken her hills for their home. So long as the moist land and the dry lie close together, the thin fringe of verdure known as Palestine will always be in danger from the devouring hordes of the desert.

Invasion from the desert is not the only evil result of the sub-tropical climate of Palestine. In a country devoid of summer rains, and hence limited in the variety of crops, want or even famine often prevails. If the rains of autumn fail to begin at a date early enough to allow the winter wheat and barley to get well started before the cool weather of winter stops their growth, the crops are greatly injured, as happened in the terrible year, 1869–70, illustrated in the figure already referred to on page 34. Quite as often they are spoiled by drought when the rain ceases

in the spring before the crops have sufficiently matured. Hence the inhabitants frequently find themselves face to face with the famines so much more prevalent in sub-tropical countries than in those blessed with a rainfall distributed uniformly through the year.

For ages the people of Palestine have been forced to live under climatic conditions which have continually kept them in a state of anxiety. In the past, however, this seems to have been less true than now. Through some agency whose nature is still in doubt a great change has come over the country. As to the reality of the change there can be no question. In all parts of Palestine unnumbered ruins show that once the population was more dense than now. In Judea, Samaria, and Galilee the terraces of vineyards, the cisterns of farmhouses, and the stones of villages strew scores of barren hillsides, or are scattered far beyond the limits of modern habitations. East of Jordan and in the low south-country of the Negeb ruins are still more abundant than in the inhabited parts of the land. There, in places where not a vestige of settled life can now be seen, dozens of ancient ruins proclaim the former existence, not of petty villages, but of prosperous towns and rich cities so large that they were graced with splendid temples and theatres. The same is true around the Sea of Galilee, and for hundreds of miles to the north and northeast in Syria. In many places

the sites of the old villages are waterless; elsewhere the limestone hills are so devoid of soil that a single farmer, and far less a whole village, could scarcely find land enough to raise crops. Something clearly has changed. Has it been the type of inhabitant? Is the present state of the country worse than that of the past because the idle Arab has displaced the industrious Jew, and the vacillating Turk the strong Roman? Has the substitution of misrule and oppression for a just, firm government caused the physical deterioration of the country? Or has nature herself suffered a change which has brought in its train depopulation, and all the miseries of the present unsettled conditions?

These questions cannot be answered offhand. On their answer depends much of our interpretation of history. Before discussing them, however, we must see more of this strange little land of Palestine, this least of all lands. We must realize its variety, and must see more fully how its diverse parts owe their peculiarities to the grid-ironing of the land by geological movements north and south and east and west. We must ascertain how topography has influenced the location of highways and the mingling of alien races. We must also further investigate the climate and determine how its sub-tropical character has caused deserts and fertile lands to be commingled, and has put the men of the dry lands ever in danger from famine and those of the moist

in still greater danger from the inroads of their hungry brethren. Then we must comprehend how Judea, in the centre of busy life, has nevertheless been the refuge and sanctuary of Judaism. Sheltered among the rounded hills of their plateau, the Judeans were close to the other parts of their little country, and yet apart in safety. They felt the influence of the highly varied districts round about them, but retained their individuality. The traffic of the world passed to south and west and north, bringing them something of the busy life of the great world, but not touching them in such fashion as greatly to alter their mode of life. They adapted themselves to the dry and wet seasons of their sub-tropical climate, but were protected from its ill effects by half a mile of elevation above the sea. They shuddered as hordes from the desert pressed in over Moab or the Negeb, but their isolation saved them from the scourge. So for over a millennium they developed noble ideas of God and truth and justice, until the greatest of men came up from Galilee, and, taking the truths which had been fostered and preserved in Judea, transformed them into the peerless rules of conduct which form the basis of Christianity. All these matters must be discussed and clearly understood. Then we shall be ready to investigate the great change which has come over Palestine and all the lands about it, and to explain the difference between the Palestine of the past and that of to-day.

## CHAPTER III

### THE COASTS OF PHŒNICIAN AND JEW

Few closely associated names stand for more strongly contrasted ideals than those of the Phœnician and Jew. To be sure, the Jews of modern times, like the Phœnicians of old, are regarded as typical representatives of business acumen and shrewdness, but with them we are not now concerned. Our interest is in the Jews as moulded by Palestine, the ancient Hebrews whose supreme contribution to the world was a high ideal of loyalty to a single God, endowed with the noblest attributes which man has yet conceived. The Jews who evolved these ideas were not traders, but a quiet, secluded people to whom traffic was far less noble than the peaceful pursuits of agriculture. Not willingly did they wander far from home. To them the sea was something strange and distant, something inhospitable and terrible. What the Jew feared, the Phœnician loved. Trade was his delight and glory. The sea was his friend and companion, even though it might sometimes cause him to suffer. Wanderer as he was, and cosmopolitan, he prided himself on having no crude fanaticism like that which he despised in the narrow Jew. He was ready to tolerate new gods, if

expediency so directed. Religion might be a matter of fear, but at least it did not prevent him from enjoying the grossest material pleasures. Gradually, and with no knowledge of how great a thing he was doing, he spread abroad the art of writing, and gave us the symbols from which the letters on this page have evolved. If the Phœnicians had thought of the matter at all, which probably not one in a million ever did, they would presumably have said that their broad free life would influence the world vastly more than that of the bigoted, exclusive Jews. Their standards were material. They little knew that the secluded Jews were gathering thoughts and ideals which would one day be flung forth from the narrow bounds of Judea and Galilee to touch the world at a hundred points where their life touched it at one.

The difference between the Phœnicians and the Jews cannot be ascribed wholly to the influence of geographic environment. Nevertheless, the contrast between the two races was largely due to the dissimilarity of the portions of the Mediterranean coast north and south of Esdraelon. To be sure, the Hebrews had little to do with the coast of their country, but that very fact illustrates the influence of the two types of coast. North of Esdraelon the last important movement of the earth's crust depressed the land somewhat, while to the south elevation took place. From this arises much of the contrast between Phœni-

cian and Jew. If conditions had been reversed, the Jews might have been famed as seafarers rather than as exponents of religion.

North of Carmel and the fault of Esdraelon all the country of Phœnicia, or as it is now called, Lebanon, is mountainous. The only exceptions are a few narrow little plains lying along the seacoast and separated from one another by rough hills which often come to the sea in bold bluffs. The length and breadth of the narrow Phœnician strip affords no fit location for a large town save on the seacoast. Elsewhere there is scarcely a village or even a hamlet whose stone houses do not climb hither and yon to find a perching place upon the steep slopes of Lebanon. No one can traverse the land from north to south without meeting constant obstacles in the way of rugged ridges to be climbed, or gorges and turbulent rivers to be crossed.

The only possible route from end to end of Phœnicia is along the coast, but even this is almost impossible in the face of an enemy. The difficulty experienced by invaders has led them to boast each time that they have entered the country. They have left their records on the rocks at the Nahr el Kelb, the River of the Dog, just north of Beirut. There, as in many other less notable places, cliffs rise sharply from the sea, and can be passed only by climbing painfully up the steep slopes, or by cutting a road in the face of

the rocks. In 1860 the French came to the country to fight for the Syrian Christians, and helped to give them the autonomy which the brave mountaineers well deserved. There on the cliffs by the River of the Dog they have left a record of their deeds close to a similar record made by old Sesostris, or Ramses II, more than three millenniums ago. Between the days of the Egyptians and the French the Assyrians struggled at the passage of the cliffs, the Romans hewed from the rocks a new road better than that of their predecessors, the Frankish Crusaders were almost driven back, and Selim, the Turkish Sultan, built a bridge to facilitate the crossing of the river. All these memorials cluster here because this was the sole path by which Phœnicia could be entered, and because the invader who passed the cliffs felt that some great thing had been accomplished.

Among the mountains no army could ever move athwart the valleys. In June, 1909, the Yale Expedition went from the Cedars of Lebanon at Bsherreh, east of Tripolis, to Beirut. We kept back among the mountains in order to visit certain springs where rivers pour full-fledged from limestone caves to thunder milk-white under splendid natural bridges. The three days' ride although delightful, was rough in the extreme, and most tiresome for the horses. Occasionally the mountain-sides were forested, in one place with young cedars, oftener with pines, and most

frequently with junipers. As a rule, however, the rugged slopes were bare and rocky in the upper portions, or wonderfully terraced for mulberry groves, vineyards, or orchards in the warm lower parts. Scarcely a mile of the three days' journey was level. As soon as we had climbed one winding trail, we led our horses down over the slipping stones of another. Our guide knew little of the paths. Again and again we stopped in a hamlet to ask some gatherer of mulberry leaves the way over the ridge to the next valley; but in spite of the most minute directions, we found ourselves continually turning too much to the right, westward toward the sea. To go down toward the coast was easy, but to climb back again toward the path higher up in the mountains very hard. In every case where the trail forked, the downward path was the well-trodden one, for all things go toward the sea.

The view was like the trails. Downward great valleys opened inviting vistas, with frequent glimpses of the sea, or of green orchards and prosperous towns near the coast. Upward the eye glanced from cliff to cliff, and rested on the bald heights of Lebanon, streaked with lines of snow in the little valleys. From the snow foaming brooks came tumbling thousands of feet, to be lost in the forests, or to be spread out by man to water the pollarded mulberry trees and pretty gardens on the top of some vast terrace of natural

rock. Then they gathered once more, to plunge down one or two hundred feet over the vertical cliffs of the hard layer which made the terrace. Mountainward the view of snow, waterfalls, and cliffs was grand, but not alluring. Westward lay all the attraction. Down there were the towns, the fascinating places where men gather to buy and sell. No Phœnician lad of spirit grew up without longing to visit the market town where his father traded; and every large market town was beside the sea. As the boys and their fathers descended the mountain trails, they soon emerged from the narrow canyons, and followed the tops of the ridges where the sea is ever in sight. No boy could live in Lebanon and not be familiar with the sea. If his village lay deep in a valley, he would surely climb the heights in search of stray sheep, or in boyish love of adventure. There he would look out on the sea, nowhere twenty miles away in a straight line, and rarely more than twelve. In half the villages of Lebanon the sea is visible from the houses themselves. Its pale blue plain seems to rise up from the land. It ends in a dim horizon, so distant that it ceases to be a sharp line, and fades into nothingness. In the Phœnician days, even as now, few of the people of Lebanon ever saw a real sunrise. The sun was high long before it overtopped the mountains. But all men saw the sunset; and every sunset was over the beckoning sea. Little the first Phœni-

cians knew of what lay beyond, but when the sun rode far to the north in summer, they could see the mountains of Cyprus standing out in silhouette against the golden evening sky. In summer, when storms are rare, the treacherous sea seems lulled to eternal quiet. Then the Phœnicians, looking out at the distant island, must have brooded over the smooth sea, and been filled with irresistible longing to fathom the mystery of the strange land off to the west. The Phœnicians were no idlers, for hard work is required to till so rough a land, and to climb its steep hills. They had no fear of the water, for no man fears that which is familiar from childhood to old age. In all ways they were fitted to become the first great masters of the sea.

The familiarity of the Phœnicians with the sight of the sea, the fact that all roads lead to the sea, the inevitable location of the larger towns beside the sea, and the almost impassable wall of mountains which shuts Phœnicia off from communication with the lands to the east were not the only factors tending to produce a maritime people. Two others were, if anything, still more important. One was the insufficiency of the land for its inhabitants, and the other the form of the coast line. To-day, as always, Lebanon is on the verge of over-population, and her people are pushing westward. In England, and far more in America, the Syrian is a familiar figure. We know him chiefly as a factory hand or vender of small needlework.

The persistence with which the modern Syrian urges his wares upon the unwilling housewife is the same spirit with which the old Phœnicians gained wealth from the people of Spain. In both cases a race of industrious farmers has found its mountain home too constricted; and, being forced outward, has abandoned the old occupations and adopted the mercantile pursuits which are the natural resource of a wandering people. Syria is four hundred miles long and eighty wide, but the bulk of our Syrian immigrants are from the densely populated little district of Lebanon, scarcely eighty miles long and twelve wide. In almost every village returned wanderers are found who speak English. In one place we lodged with a man who had made what he considered a fortune in Cuba after the Spanish War. He was spending his declining years among the mountains in a newly built inn, which he vainly hoped would take the fancy of the Syrians as a summer resort. In an elevated valley one night I overtook a middle-aged woman and her old father whom she had come back to visit. When I tried to inquire the way in incomprehensible Arabic conned from the introduction to Baedeker, she interrupted me in execrable English: "You American man? I American, too. What village you go to? You got friend there? How long you stay America?" Apparently her horizon was so full of the idea of Syrians returning home that she took me

for one who had gone to America in childhood and had forgotten Arabic. The next day two prettily dressed girls among a group at a fountain looked truly American. They greeted me in perfect English, and said that they lived in Iowa, and had come home to their grandfather's on a vacation. So it is everywhere in the narrow, mountainous little strip of Lebanon. The country is healthful, families are large, and the proportion of children who die is apparently small for an oriental land. Wars have never been numerous because Lebanon is so well protected by nature. Therefore population is prone to increase. The land is too rugged to support many inhabitants, no matter how industrious they may be. An outlet is needed, and the only outlet is by sea.

In spite of all the other natural conditions which tend to render the people of the Phœnician coast seafarers, the Phœnicians would probably never have been such a maritime people in the absence of one feature especially connected with the fault of Esdraelon. A glance at any good map shows a marked contrast between the coast of the Mediterranean north and south of Mount Carmel. To the south it is almost straight with no trace of anything which could possibly be considered a real harbor. To the north irregularity prevails. As one looks out from a ship anchored off Haifa, the range of Carmel raises its wooded bulk to the south and gives a feeling of protection,

while to the north the point of Acre shuts in the bay so that scarcely ninety degrees of the horizon are exposed to the open sea. At Tyre one side or the other of an anvil-shaped peninsula offers a refuge from every wind. At Sidon an island lies offshore at the end of a little cape, and is tied to the land by a long bridge, beside which scores of small boats ride safely in rough weather. At Beirut a promontory projects into the sea farther than at Carmel, and ships can weather ordinary storms. No harbor is really landlocked like that of New York or Constantinople, but the inequalities of the shore are sufficient to afford important protection to all kinds of shipping. In the old days of small boats which could easily be beached, the degree of protection was greater than now, when the depth of water required by large steamers forces them to lie some distance offshore. Yet even in this respect the harbor of Beirut is not bad, for seagoing vessels can come close to the land.

The importance of the irregularities of the coast may best be appreciated by contrast with the portion to the south of Carmel. From Haifa to the mouth of the Nile, nearly three hundred miles away, not a single real harbor affords refuge. At Cæsarea, in the north, Herod built breakwaters at great expense, and made a fair harbor for that day; but it is ruined now, and at its best was too shallow for modern steamers. A seacoast town of

over thirty thousand inhabitants ought to have a harbor, but Gaza, far to the south, is harborless. Down by the beach, and separated from the city by nearly a mile of sand dunes, a whitewashed custom-house mounts guard over a small wooden wharf and a few sailboats. Occasionally a steamer calls to carry away barley in exchange for a load of iron or cloth for sale to the Beduin; but ships large enough to go to sea must anchor a mile from shore, and can discharge their loads in lighters only in calm weather.

At Jaffa, between Cæsarea on the north and Gaza on the south, conditions are no better. Every tourist who has landed there knows how the boatmen surround the steamer, fighting for passengers with shouts and curses. And every one remembers, also, how the waves boil among ledges of rough rock, lying nearly flush with the surface of the water, and dipping gently seaward. Accidents are frequent when the waves run high. A much-quoted story illustrates the inhospitality of the coast of Palestine. A poor missionary with four children went to Beirut for a summer's rest. When he returned to Jaffa in the fall, the waves were so high that no boats dared venture out to the steamer. Of necessity he went on with the steamer to Port Said. On the return voyage the waves were again too high to permit a landing; so on he went back to Beirut once more. The third time the sea was still unquiet when the much-

travelled family reached Jaffa; but this time boats came out, and the party left their imprisonment on the steamer. The waves seemed bound to engulf the boat, but all went well until the breakers among the rocks were reached. There the boat capsized. No one was drowned, but all the baggage fell into the sea, and only a few pieces were recovered. Such accidents are so likely to happen, and are so often accompanied by loss of life, that the Jaffa boatmen naturally do not care to run risks in rough weather without the payment of exorbitant hire. On a coast so devoid of harbors a seafaring people could never develop.

The difference between the Phœnicians and Jews, as has been said, was due largely to the contrast between the coast to the north and to the south of Carmel. The coast, however, rarely influenced the Israelites directly. Their relation to the sea was determined by the nature of the plain of the Philistines at the base of the Judean plateau. When the country south of Esdraelon was elevated, a portion of the sea-floor became dry land. This is the Philistine plain. Because it lay between the Judean plateau and the sea, the Hebrews remained isolated. Let us examine this plain, this threshold of Palestine.

To Mr. Graham and myself, as to the majority of travellers, Jaffa and the Philistine plain were the introduction to Palestine. After an exhilarating dash through the breakers we were con-

fronted by the usual demands of the boatmen for more than we had bargained to pay. Having shaken them off with shrugs, we went from the landing into the slimy streets, and our visions of the Holy Land were rudely shattered. Crowds of ragged, unsavory orientals swarmed the cheap bazaars; strings of camels, with tufts of winter hair still clinging to their smooth sides, crowded everything else to the wall. The city seemed the acme of Eastern squalidness with nothing to redeem it. We almost determined to take the train for Jerusalem at once; but having decided to spend a day in Jaffa and drive to Jerusalem the following morning, in order to get a look at the Plain of Sharon, as this part of the Philistine plain is called, we stuck to our plan. We did not visit the house where Peter is reputed to have seen the vision of the clean and unclean beasts, for doubtless he himself would disagree with the guides as to its location. Nevertheless, we saw many things which are probably still as they were in the days of the Apostle. His lodging may have had a flat roof partitioned by walls a foot high into rectangles the size of the underlying rooms, as is still common. It surely had no pyramidal roof of red tiles such as those which now lend picturesqueness to parts of the city. Nor was it surrounded by a hedge of prickly pear ten feet high, for America was not then discovered. In his day, as now, however, the houses must have

clustered on the loose sand of the shore, or on the bluffs which the sea has cut in the consolidated dunes of former ages; the waves must have boiled incessantly among the rocks, drowning the boatmen who ventured out when it was too rough; and in the unsewered streets there must have moved a throng more motley than the fag ends of humanity who now jostle one another, for in those days Joppa was not only a port, but was a great station on the main highroad from Egypt to the north and east.

A walk outside Jaffa gives a true impression of the Philistine plain. Leaving the wearisome town at noon, we went to the seashore. The beach is made of pure sand, containing a multitude of small shells an inch or more in diameter which have been worn into charming shapes by the waves; one picks up whole handfuls of the daintiest round bits, like veritable pearls, or tiny clubs polished most perfectly. Elsewhere almost uninjured shells lie to a depth of a foot or two. Under the water or cropping through the beach itself we saw old rocks of the same materials, — sand and shells, — proclaiming that the plain was formed under the sea in the recent geological past. Inland the plain is not perfectly smooth as it was when first elevated above the sea. Rain, frost, and streams have acted upon the soft rocks until now the scenery is diversified by low rolling hills between broad, flat-floored valleys. Some of the views are

charming, — white houses set among palm trees and an occasional eucalyptus, long hedges of prickly pear surrounding trim orchards of thriving orange trees, some of which in early March were still laden with fruit, and green fields of grain adjacent to sandy wastes, where close scrutiny revealed acre after acre of leafless vines growing in drifting dunes. Sometimes we saw fig trees just beginning to put out leaves. Elsewhere the cactus hedges were replaced by lines of a small mimosa tree bearing lovely golden balls of tiny flowers. The little spheres, half an inch in diameter, gave out the most dainty, spicy odor imaginable. By the roadside or in the fields we passed bright spots of color made by white or yellow daisies, lupines of red, yellow, and blue shades, brilliant red poppies, and a score of other little blossoms.

Once we wandered in an orange grove, where the fruit unfortunately had all been picked. We were trying to find the proper spot for a photograph of a house. A merry Fellahin boy with a double-barrelled shotgun was in the ploughed field in front of our desired house. Apparently his purpose was to keep the birds away, for among the sprouting melons of the next field several homelike scarecrows stood ready to help him. The Arab peasants of the plain are reputed to be good-natured people, industrious at times, but generally disinclined to work, peaceful and mild on the whole, but seeing no harm in the use of

force, if vengeance can be satisfied thereby without fear of retribution.

The Fellahin of the Plain of Sharon and of other fertile parts of Palestine, such as Carmel and the upper part of the Jordan Valley, see in the Jew their greatest enemy. It is an interesting commentary on the conditions of modern Palestine that the only successful colonies of Jewish Zionists are in places like the plains of Sharon and Esdraelon or the highest part of Galilee, rather than in Judea or Lower Galilee, the homes of their ancestors. Around Jaffa the Jewish colonies are undoubtedly successful, so much so that the native population is sorely jealous. In enmity toward the colonists, they steal the fruit and break the branches in the orchards, turn horses into the grainfields, and break down hedges. Still, the Jews prosper. Irrigation and the orange tree are the secrets of their success, for the oranges of Jaffa are famous in Europe. Strangely enough neither the orange nor irrigation was known, or at least much used in the days of Palestine's chief glory. The time of the introduction of the orange and lemon is not known. Their less useful relative, the citron, is supposed to have been brought from Babylonia to Palestine on the return from the captivity. In Roman times it was cultivated by the Jews. Then, as now, the branches were used at the Feast of Tabernacles.

Although the process of irrigation was familiar

in Biblical days, it was little practised in Palestine until after the time of Christ. The methods now employed in the Philistine plain, however, were apparently wholly unknown in ancient times. The modern Arab fellah, like all the peasants of the past, raises his grain and figs with no water except that furnished by rains, but for oranges, lemons, and other more valuable crops he must have moisture during the long dry summer. Accordingly he digs numerous wells, such as his ancestors used for drinking purposes, and from them obtains a continual supply by means of pumps worked by oxen or donkeys, which patiently circle around day after day. The Jewish colonists have greatly improved on this by employing gasoline engines, and secure a large amount of water at a reasonable cost, but only in the strip of land close to the coast. Farther back the supply of underground water is more precarious, because the underlying strata become more calcareous and less sandy, and hence are less easily penetrated by water. Moreover the strata slope gently toward the sea, so that in the porous layers there is a continual flow toward the low land along the coast. In former times the plain appears to have been as fertile as now, even without the help of irrigation. The introduction of a new process in order to rehabilitate the country agrees with the introduction of the orange, cactus, eucalyptus, and other new

forms of vegetation in suggesting that there have been many changes since the days of the early Jews. It seems a strange anomaly that the modern Jews should be most successful in exactly the places where their ancestors were least so; while in Judea and the other parts of the highlands almost no colonies have been successful. The Zionists are hopeful and energetic, but the task of restoring Palestine to its former condition is probably impossible.

Inland the Philistine plain changes rapidly. As we drove toward Jerusalem, the way at first led through orange groves where palm trees rise behind cactus hedges. On the left the Jewish Experiment Station, with its red-tiled buildings and fine assortment of trees, including about a hundred species of eucalyptus, makes a pleasing group in harmony with the spire of the neighboring Russian monastery. Inland from Jaffa we passed Fellahin villages whose one-story houses of mud often bore a crop of green grass on the roof. The road avoids the villages, and one must turn aside to see them. As we walked up the cactus lane to Sarafan, we came upon storehouses for grain and straw, — conical structures of mud like great beehives, eight or ten feet high, with little entrances a foot or two in diameter at the base. In front of them we met a woman dressed in a gown of the universal dark blue cloth enlivened by a red yoke. She walked, as all the Eastern women walk, erect

and graceful, apparently undisturbed by the fact that she was carrying a baby in her arms and the baby's cradle on her head.

Within five miles of the sea the orange groves come to an end; the necessary water for irrigation can no longer be easily procured. Trees diminish beyond this point and are confined for the most part to almond and olive groves. The contrast between the bright young leaves of the almonds, some of which in early March still bore pink and white blossoms, and the grayish green of the olives is most effective. Palm trees continue to be scattered here and there as far as Ramleh. On the whole, however, the plain is open; and its rolling hills are covered with fields of grain interspersed with freshly ploughed squares, or with delicate, pale blue patches of a coarse bean known to the Arabs as "turmus." As late as nine o'clock, when we went to look at the dainty flowers, we found the dew still heavy, for the cool of the morning persisted.

Later in the season we saw the plain of the Philistines east of Gaza, and there, too, the scenery consisted of a succession of low rounded hills and broad vales covered with waving grain. As soon as the orchards and groves of the coast are left behind, variety of landscape ceases; but the country is open and friendly, a land of grain and cattle, where life is fairly easy. In the earliest recorded history the Philistines were more cul-

NATURAL BRIDGE AT AIN EL LABEN IN LEBANON

WOMAN WITH BABY AND CRADLE IN A VILLAGE OF PHILISTIA

tured than the Jews. Their rich plain, easily traversed, lent itself to early civilization. The inhabitants of such a place were naturally in touch with other nations. The great route from Egypt to the East, as we have seen, passed directly through their land. They had learned to use iron when their Jewish neighbors in the hills were barely emerging from the age of bronze. They tried to prevent the knowledge of its use among the untutored tribes of the plateau. According to the Biblical account, there were no smiths in Judea in those early days directly after the inroad of the Israelites from the desert. Therefore the cultured people of the plain were able to restrain the depredations of the highlanders by compelling them to come to the lowland for the sharpening of scythes.

How different the history of Philistia and of Phœnicia. The plain by its openness and richness fostered civilization. It invited the trade and armies of the great world. It offered an attractive field for warlike conquest like that attempted by the early Israelites, and for peaceful invasions like that of their descendants, the Zionists of today. If the population grew too dense, it was an easy matter to move down the great caravan road to Egypt, or up to Syria, and settle in some neglected corner or work for some rich foreigner. No urgency forced the people of the plain to escape by way of the sea; nothing tempted them to

explore the inhospitable water and master it. Because of all this no strong national feeling ever grew up in Philistia, nor did the inhabitants possess any pronounced characteristics which influenced the people around them. How could it be otherwise? In such an open land, easy to traverse, and a highway of armies, the population was subject to constant fluctuations, the government was almost invariably in the hands of some strong foreign power, and the inhabitants were continually moving back and forth to other lands. The plain of the Philistines would play no rôle in history, had it not separated the Hebrews from the coast and served as a highway for the nations.

Before we leave the subject, let us turn back once more to the geological structure which has given rise to the marked contrast between Phœnicia, with its strong individuality, and Philistia, with its lack of positive character. The difference, as has been said, depends upon the fact that the country north of the fault of Esdraelon has been depressed somewhat, while that to the south has been raised. Just when this process took place cannot be told in years. It was long ago, as measured by human standards, — long before the advent of man, but not long ago geologically. When it took place the Syrian mountains had not been worn to their present condition of deep dissection, for if such had been the case the depression of the land would have allowed the sea to flow far back

into many valleys. Conditions were such, however, that the sea was permitted to come up to the base of the mountains, and to enter somewhat into the mouths of the valleys. Thus bays were formed, such as those of Carmel and Beirut. Since that time much wearing away of the shore by waves has taken place, but still a fair degree of irregularity is preserved. In some places bays or gulfs have probably disappeared entirely from prolonged action of the waves on the enclosing promontories. In other cases erosion has left hard layers standing out as headlands or islands. The original process of drowning the coast, that is, of depressing it below the level of the sea, induced irregularity and formed harbors; the subsequent processes of erosion have tended on the whole to efface the harbors, but enough still remain to influence profoundly the history of the people of Phœnicia in the past and Lebanon in the present. Tyre and Sidon in their day rose to fame because they were seaports ; and for the same reason Beirut in modern times is the second city in Syria, and the fourth in the Turkish Empire, being exceeded only by Constantinople, Smyrna, and Damascus.

South of Mount Carmel and the Plain of Jezreel the land rose when the break took place along the fault of Esdraelon. The bottom of the sea was raised and became dry land. On the smooth surface thus exposed the seashore was

naturally almost straight. Seaward the water is shallow; landward the old sea-bottom rises very gradually, forming the plain of the Philistines. On such a recently elevated shore, bays are always scarce. The sea is eating inland, and is forming cliffs from twenty to a hundred or more feet high, such as those at Jaffa. In time the sea will cut far backward, and the coast will become slightly irregular because of differences in the hardness of the rocks; but that time is far, far distant. Its coming is delayed by the fact that silt from the Nile is drifted northeastward along the coast by the southwesterly winds which prevail much of the year. The harbors of Palestine are likely to grow worse rather than better; harbor works would scarcely be worth while at Jaffa or Gaza, the only two cities of any size along the coast; and when the much-discussed railroad is built from Egypt up the coast to Haifa, along the old trade route, both Jaffa and Gaza will be used by steamers even less than now. Haifa is likely to increase in importance, but it belongs to Phœnicia, although it lies no farther north than southern Galilee.

Once, in the very earliest days of their kingdom, Haifa belonged to the Jews, but soon they lost it. They had never learned to use the sea, and so did not retain their only good harbor. They were not tempted seaward, as the Phœnicians were; for the waters of the Mediterranean

did not wash the base of their mountains. Their market towns did not lie near the sea, nor did their roads lead seaward. To be sure the sea was part of the view from scores of villages in Galilee, Samaria, and Judea. The Galilean coast, however, belonged to the Phœnicians long before the Jews came to the land, and it never changed masters. South of Carmel the provinces of Samaria and Judea were separated from the sea by the land of the Philistines, the low rich plain which the Jews coveted, but rarely conquered, and never permanently held. They looked across what was practically a foreign country, and saw the sea far away in the dim distance, fascinating perhaps, but not tempting them to conquer it. If the land south of Carmel had not been raised to form the coastal plain, and the sea had washed the foot of the Judean hills, great results would have followed. The Jews might have been seafarers; their land would have been the highroad from Egypt to the East, for the main route of trade would probably have been forced to go through Jerusalem; the seclusion of Judea would have been destroyed; and the whole history of the country and of the world might have been different.

## CHAPTER IV

### THE DEBATABLE SHEPHELAH

In an earlier chapter emphasis was laid upon the fact that Judea is the heart of Palestine. Hence it may seem strange to devote no single chapter to that province exclusively, but there is good ground for this. The plateau, the most important part of Judea, is only twelve miles wide and forty-five long, and its structure is simple. Its importance depends largely on its relation to the surrounding regions, and its peculiarities can best be appreciated by comparison with those of its neighbors. Nominally the four succeeding chapters are devoted to the borderlands of Judea on the west, the east, the south, and the north. In reality they are devoted in an equal degree to the relation between the outlying regions and the plateau, and to the points in which they especially differ. Thus the Judean plateau is the central theme around which the facts and descriptions, not only of the first chapter, but of four others, are grouped. The heart of the land is too important to be restricted to a single chapter.

On the west, as appears in the diagram at page 22, and less clearly in the relief map forming our frontispiece, the Judean plateau is sepa-

rated from the Philistine plain by some low chalky foothills. These extend as a discontinuous range for about forty miles from the Vale of Ajalon, close to the northern border of Judea in the latitude of Jaffa, to the southern end of the plateau, in the latitude of Gaza. The foothills are separated from the plateau by a valley or inner lowland, broken into a series of small narrow plains by saddles connecting the chalk hills and the main highland. This range of hills and the inner lowland constitute the Shephelah, the western bulwark of Judea. We first crossed it on the drive from Jaffa to Jerusalem, described in part in the last chapter. As soon as the road leaves the Plain of Sharon, a little beyond Ramleh, and only twelve miles from the Mediterranean, trees become scarce; the villages betake themselves to the hills; and the grainfields are restricted to the broad, open valleys. Many hills disclose great ledges of naked rock; others are green with oak scrub. The most picturesque are crowned with enclosures of prickly pear surrounding groves of olive trees, roundly developed and standing well apart. At the ragged little village of El-Kubab we reached the summit of the low range of the Shephelah, the debatable land between the Philistines and the Hebrews. Westward from the olive groves or scrub oak of its rocky hilltops one looks fifteen, or at most twenty miles across the open plain to the bright line of the sea. Eastward, at

half the distance, the rugged western escarpment of the Judean plateau closes all the view with its gray forbidding slopes.

The nature and functions of the Shephelah can best be apprehended by a realization of the contrasted nature of the plateau and the plain between which it stands. From the sea near Jaffa, the plateau appears low and blue, almost enticing save that it lacks variety. Close at hand it presents an inhospitable front, more hostile than the mere steepness of its slopes would warrant, but quite in harmony with the stony windings of the dry valleys up whose rivers of limestone fragments lie the only approaches to the summit. An invader from Egypt or Assyria would be loath to lose himself in the plateau. In the plain he can climb a low hill and look abroad on all sides for miles. He can see the location of towns and roads from a distance; he can travel without roads, and can always find his way with ease. He can procure food, too, by plundering the prosperous villages. He can post watchmen on the tops of the round hills, and see an approaching enemy at a distance. In the plateau this is impossible. The valleys are narrow and the sides are steep. A whole army might lie in the bend of a wadi, and a thousand watchmen could not see it. The valleys turn this way and that; and the fact that a valley appears to lead in a certain direction is no sign that it actually does so. The slopes are so rugged

that to go straight ahead in a given direction is practically impossible; and the invader without knowledge of the country runs every risk of going where he does not intend, or of running into an ambush.

Between the plain and the plateau the Shephelah stands as a transition zone. To one coming from the rugged plateau it seems open and easily traversed. To one coming from the broad plain it seems cramped and rough. It was the rampart of the Philistines against the Hebrews and the outpost of the Hebrews against the Philistines. There, in the early days, when the Hebrews had first conquered the plateau, and were striving to oust the Philistines, the villages of the two races lay side by side, and the Shephelah belonged to neither. Among the vineyards and olive groves of one of its pretty villages Samson grew up, in the Vale of Sorek, where the railway from Jaffa to Jerusalem now runs. Doubtless his comrades learned to respect the sturdy, long-haired lad when they found that he could outrun and outwrestle any Philistine lad from the neighboring villages. As he passed from boyhood to manhood, he grew strong with wielding the sickle under the summer sun in the waving wheat-fields spread out at the foot of the village. As he lay in the shade to rest at noon, he looked at the oaks on the hillside close by to the south, and wished that he could see through the hill to Tim-

nah, not far away, where lived a Philistine girl more fair than the fairest Jewess. Later, in those same hills, he killed the lion, and thought of the riddle which caused him to lose the girl as soon as he had married her. His own hot-headed haste occasioned her death, and began the long quarrel which brought such misery to the Philistines, and so much glory and shame to Samson.

Back of the quarrel, as its ultimate cause, lay the fact that the Shephelah, by its very nature, belongs neither to the plateau nor to the plain. If a strong government prevails in one place and not in the other, the Shephelah belongs to the strong. In times of turmoil, like the days of the Judges, both sides lay claim to it, and neither owns it. In periods of peace the Shephelah inevitably gravitates toward the plains. It is easier to go down than to go up. Rich lowland cities and busy marts are more attractive than poor upland villages and the barter of peasants. The highlanders themselves in ancient times were not the kind of people to foster intercourse. The hills of Judea lay within sight of the haunts of Samson's youth, and could be reached on foot in a short winter's afternoon. When he became famous the Hebrews of the plateau looked up to him as judge, but in the days of his early struggles they delivered him bound to the Philistines. Apart, as they were in their mountains, they had little to do with the outlying Shephelah. Samson, conversely, was

rarely attracted by the infertile highlands. His thoughts were drawn toward the plains. It was the wealth of the Philistines which attracted him, and their false, enticing women. He was steadily drawn downward toward the ease and pleasure of the lowlands. Yet he hated the lowlanders and their ways, fought with them, and conquered them, and in the end succumbed to them. His life was typical of the Shephelah, a halfway land, close to Judea, and forming its outpost, but separated from it more than from the plain.

Another great Bible story is equally typical of the Shephelah. In the later wars between the Hebrews and the Philistines the Shephelah was of necessity the chief battle-ground. There in the days of Saul, the armies of the two struggling little countries were encamped against one another on either side of the Vale of Elah. Below them lay the smooth corn lands of an open valley breaking westward between the forested chalk hills where the forces were encamped. Fearing on either side to risk an open battle, they remained in the hills for weeks, taunting one another, and boasting, as Orientals will, but never putting the matter to the proof. The story may contain much that is legendary, but it is very true to life. Then young David came down the narrow valley from Bethlehem. It was but a morning's walk for the sturdy son of the wealthy sheepmaster. If Jesse had given instructions to his son at breakfast-

time some day in the fall, the season when war was most likely to take place, the young warrior might have been off by seven o'clock, and would have had no difficulty in swinging down the rocky Judean valley, and across the little lowland of the Shephelah, reaching his brother's camp an hour before noon. The fight admirably illustrates the difference between the plainsman and the highlander. The boastful plainsman relied on his size, his knowledge of the world, and the skill of the craftsmen who had equipped him with sword, spear, and armor, — in a word, on the wealth and culture of his land. The highland shepherd depended on the alertness of mind and body which he had gained among the hills, and the accuracy of eye and hand which he had learned in defending his sheep in the waste places east of his home. Neither David nor Goliath had the faintest idea that either owed aught to the hills or the plains. As individuals they doubtless owed far less to the immediate influence of the physical environment in which they grew up than to inheritance and training. Religious sentiment, racial pride, and the character of their parents and comrades, together with the subtle something which gives to each man his own individual character, unquestionably were the controlling influences in their lives. But all these were moulded by environment. The highlander must climb vigorously or starve. Those who will not climb become poor and weak,

their children are ill-fed, and their grandchildren are few in number. Thus from generation to generation a selective process chooses out for the highlands a sturdy alert type, less cultured and less worldly-wise than that of the plains, but of firmer, finer grain. This was the difference between David and Goliath, between the Hebrews of the plateau and the Philistines of the plain. Many other elements entered into the evolution of these two races, but none was more persistent or ultimately more powerful than the unrecognized but incessant pressure of geographic environment.

The Shephelah was not merely a transition zone between the plain and the plateau, a place where armies met, the bulwark of the Hebrews, the outpost of the Philistines. Separated from both plateau and plain, and belonging to neither, it became for both a refuge from the oppressor. Thither David fled from the vengeance of Saul, to take refuge in the cave of Adullam, if Aid el Ma to the south of the Vale of Elah is really the echo of Adullam. Farther south in the caves of Beit Jibrin the early Christians found a safe retreat when bitter persecution raged in the pagan cities on the cultured coast.

The Shephelah is near to the busy life of the coast and yet strangely remote. We felt this on our second visit when we went to Beit Jibrin, or Eleutheropolis, from Gaza, the only real city of

modern Philistia aside from Jaffa. For two miles one April morning we rode through a lovely park-like suburb of Gaza where yellow barley-fields were thickly studded with fine gnarled olive trees. Their old knotted trunks, hollow and full of open eyes, tapered upward from broad bases and then expanded to spreading tops slightly whitened by myriads of small cream-colored blossoms which scented the air most delicately. From nine o'clock till noon we rode leisurely through a country of low sandy hills whose barrenness was in part redeemed by broad expanses of fertile grain-land, suffering somewhat that year from drought. Here and there we passed patches yellow with a species of low dandelion, purple with clover, blue with dwarf chicory, or white with flowers whose names we did not know. After a noon rest of two hours at the famous mound of El Hesy, whose layers of rubbish reveal city piled upon city, we traversed a beautiful rolling land in whose red soil wheat studded with white daisies grew thickly, in spite of centuries of cultivation. The land here, being close to the dry Negeb, belongs to wandering Beduin, an unusual circumstance; but on the hilltops small houses are scattered about, the homes of the Fellahin servants who till the land for their wandering masters. These houses are worthy of note in connection with the change in Palestine which we shall discuss later. Like those of many similar regions, they show the falsity of

the frequent assertion that in regions such as Syria or Asia Minor districts sufficiently moist to give a reasonable assurance of good crops are often "nomadized." On the contrary, they are almost sure to be cultivated. They may or may not belong to the nomads, and may or may not be subject to plundering by them, but except in the rarest cases, they are cultivated and contain permanent houses, not at all like the tents of the desert.

In an hour from Tel el Hesy we had left the Philistine plain and were among the hills of the Shephelah; and in another hour and a half were in the centre of its most beautiful portion at Beit Jibrin. Perhaps it was simply the day and the time of year, but the dew seemed heavier, the wheat thicker, and the olive groves more shady in this hilliest part of the Shephelah than in any other portion of Palestine. It is surely a lovely region. Because the hills are composed of easily worked chalk, they have been carved into a thousand caves. In one of these, or rather in a series of recesses opening into a large central cavern, we made our camp. In the starlight that evening we walked from cave to cave through dewy grass and grain, and lighting our candles entered the rock-hewn refuges of the early saints and the tombs of still earlier Phœnicians. In one place a dark hole in the hillside was lined with maidenhair fern so thick as to hide the walls and the slippery chalk

steps down which we almost slid. At a depth of about fifteen feet below the surface three doors opened before us in the gloom, one to left, one to right, and one in front. The left-hand door opened high on the side of a circular chamber twenty feet or more in diameter and of almost equal height. A flight of stone steps led spirally downward, but we did not descend far, for at the bottom the candle-light was reflected in dark water. The right-hand door likewise opened upon a flight of rock-hewn steps. They descended into a circular domed room of great height having a diameter of nearly forty feet. High on the right some small chambers with niches designed for the reception of bodies opened from the main room, while on the left a great doorway led into the still larger room to which the third door at the foot of the outside stairs also gave access. In the middle of this last room a square well some three feet across proves that the caves were long inhabited. The edges of the rock at the mouth of the well have been beautifully fluted where the rope has rubbed against the chalk as countless leather buckets were drawn up full of cold water. The fluting is much like that on some of the columns in Indian temples where small grooves are cut in the sides of larger ones in pleasing variety. Perchance Zebina, or one of the other Christian martyrs of whom Professor George Adam Smith writes so graphically in his description of the Shephelah,

lived in this very cave. In the second and third centuries of the Christian era monks came from Egypt and began the work of Christianizing the peasants of the Shephelah. So well did they succeed that when persecution arose in the more cultured but still pagan cities of the plain and seacoast, there were many faithful Christians, a large number of whom found a safe refuge in the hills and caves of the Shephelah. Among the young men not a few, in the ardor of their faith, went out exultingly to find that martyrdom from which the others fled. One of these was Zebina of Beit Jibrin, who defied the governor of Cæsarea when he was sacrificing to idols, and suffered death in consequence.

Other caves bear witness to more peaceful conditions, in days when the land was at rest, centuries before the time of the martyrs. Then the Phœnicians, who colonized the coast, spread back into the hills, as was natural when the country was quiet. Their caves are much smaller than those of the Christians. They were designed for the dead, not the living. They are only seven or eight feet high, and consist in general of three chambers, one in front and one on either side. On descending into the most interesting, we found that, except on the side toward the entrance, the walls are broken by gable-topped niches, about three feet high and a foot and a half wide. They are close to one another, and open

into sepulchral chambers six or seven feet in length, which lie with their long axes at right angles to the main wall. Over the niches in the chief chamber a series of paintings is still visible, although much disfigured. First comes a man on foot with a long horn, then another on horseback attacked by a leopard, at whose heels is a plucky dog. Other beasts follow, among them various African animals, such as the giraffe, rhinoceros, hippopotamus, and crocodile. The cave was constructed some two hundred and fifty years before Christ, for the chief of a Phœnician colony. His tomb is a large recess at the inner end of the main chamber. This cave, quite as much as those of the Christians, reflects the character of the country. Down the easily traversed plain came the Phœnician colonists: up it from Egypt came the artist or at least the knowledge of the animals of Africa. And both these elements turned aside into the safe haven of the hills of the Shephelah, a refuge in times of war, a pleasant retreat in times of peace, not far from the busy plain, and yet not wholly of it.

Before we leave the Shephelah it may be helpful to gain some idea of the geological structure which gives rise to the difference between the plain, the low hills, and the plateau.

Examination of the diagram, Figure 8, at the end of this volume will make the matter clear. The diagram represents a geological section cut

vertically across Palestine in an east and west direction from the seacoast to the plateau of Moab in a latitude slightly south of Jerusalem. On the left, that is to the west, is seen the level surface of the sea, and its gently sloping bottom composed of soft silts, sands, or calcareous materials. The strata of the sea floor are continued eastward beyond the seacoast, and form the coastal plain, which, it will be remembered, is merely an uplifted portion of the sea bottom. Since the time of the uplift, however, certain changes have taken place. For instance along the seashore, westerly and southwesterly winds have piled up the sand of the beach into a belt of loose dunes, insignificant in the northern parts of the plain, but broad and hard to traverse south of Gaza. Along the coast the waves have eaten back into the land sufficiently to form the bluffs which in many places lie just behind the beach. Farther back from the sea a much greater amount of erosion has been accomplished, not by the waves, but by rain and running water. Little by little the rock of the old sea floor, only slightly consolidated, has been decayed by frost, rain, sun, and the action of plants and animals. It has been converted into soil which has been carried off by every trickling rivulet whenever rain has fallen. Thus in the course of hundreds of thousands of years the original plain has been carved into a rolling country of low hills rising from broad, flat-

floored valleys. Close to the sea the process has not removed any great amount of material, because the land does not lie sufficiently high and has not been above sea-level long enough. Farther back, however, the land lies higher, and the length of time since it rose above the sea is much greater. Therefore much more erosion has taken place, and the upper, softer layers of rock have been entirely removed. Accordingly, as one goes inland not only do the hills become higher, but the rocks belong to lower and lower formations, as the diagram shows. Finally a layer of chalky limestone is reached, harder than any of the overlying rocks. Like all the others it does not lie exactly horizontal, but dips somewhat toward the west and goes under the sea eventually. Even though this layer has been above the sea longer than those which lie to the west of it, erosion has influenced it less because it is of more resistant character. Accordingly it has not been worn away so much, and forms what is technically called a cuesta. In it the valleys are narrower than in the plain, and the hills, in spite of being rounded, are decidedly higher than those to the west. Hence the westward-dipping chalk forms a range of hills running north and south, and this is the transition zone of the Shephelah. On the west the slope from the hills to the plain is gentle, because it coincides with the dip of the rocks. On the east the inward face of the cuesta is some-

what steep because there the forces of erosion tend to undermine the chalk by working upon a softer layer which underlies it. Along this softer layer the rock has been worn away so much that a discontinuous valley, or inner lowland, has been formed parallel to the cuesta. The lowland is interrupted by little saddles of soft rock not yet worn away, just as the cuesta is interrupted by transverse valleys such as the vales of Ajalon, Sorek, Elah, and others, where the chalk has been removed by streams.

Along the line of the inner lowland a slight break in the earth's crust has taken place, whereby a hard limestone which underlies the chalk has been brought up. At first this limestone dips steeply westward, as may be seen in most of the narrow valleys leading up from the inner lowland to the plateau. It forms the rugged western escarpment of Judea, which does so much to discourage the inhabitants of the plains from invading the highlands. A few miles east of the inner lowland the dip of the limestone becomes horizontal, and there, at the crest of the escarpment, the plateau begins. In the first chapter we found that between Samaria and Judea an analogous geological change takes place. In a later chapter we shall discuss more fully the effect of the hard horizontal limestone upon the people of the plateau.

## CHAPTER V

### THE WILDERNESS OF JUDEA

The Wilderness of Judea, on the east, like the Shephelah on the west, stands in strong contrast to the plateau which it flanks. We have seen the nature of the Shephelah; let us cross the plateau to the Wilderness, an easy day's ride. The road from Jaffa to Jerusalem leaves the inner lowland of the Shephelah at Bab el Wad, or Gate of the Valley, but does not emerge upon the plateau until a steep ascent has been surmounted, and the Wadi Ali has been left behind near Saris at an elevation of about two thousand feet. Thence in a straight line, the distance to Jerusalem is but ten miles through typical plateau scenery. The road winds among hills with flat or gently rounded tops, separated by valleys with steep rocky sides. The slopes are diversified with scores of terraces both natural and artificial. Only the centre of the plateau contains comparatively broad fields unbroken by terraces. There the valleys are shallow, and some of the hills have extensive, smooth tops. Jerusalem, Bethlehem, and Hebron, the only three towns of importance in Judea, all lie in the small central tract of relatively smooth slopes; but they are near the eastern bor-

der of the plateau; the roughest of valleys lie close beside them.

Beyond Jerusalem a short two miles brings one past Bethany to the eastern edge of the plateau, where the steep descent toward the Jordan begins. On the route to the Dead Sea by way of the Brook Kidron and the monastery of Mar Saba, the road drops below the level of the plateau at once. The ride is familiar to many visitors to Palestine. At first a steep descent leads from the south side of the city past the rough mountain spur of the "Field" of Akeldama to the noisome Vale of Hinnom. The trees and grass which border the insignificant brook would make the scene attractive, were not the stream obstructed by dozens of little dams behind which garbage and offal accumulate. Doubtless the vile-smelling ordure is good for the cauliflowers for which Jerusalem is famous, but one is glad to see the brook dwindle completely away. Then, for a short distance until the olive trees disappear, the valley is beautiful in the fresh greenness of spring. The surrounding country consists of bare limestone hills, slightly tinged with green grass early in the season, but soon entirely brown save on gentle slopes where fields of grain occupy the deeper soil. With surprising care the Fellahin cultivate every spot from which their primitive methods of agriculture can wrest a little food. Judea, in spite of the small number of its inhabitants, is densely popu-

lated in proportion to its resources. Thousands of acres are cultivated, although the crops are so poor that the farmers of America or Europe would not deem them worth harvesting. As the fields become fewer the brown hills suggest velvet with the nap rubbed off. The women who scour the hillsides for fuel to cook the household supply of thin round plates of bread are glad to gather little weeds six inches high. Ragged shepherd boys with shrill whistling pipes perch among the rocks. They and their flocks proclaim the vicinage of the desert and of the wandering Beduin, whose tents shortly appear. Within five miles of Jerusalem cultivated lands have wholly given place to the Wilderness of Tekoa, where Amos herded his flocks. The region is a wilderness in the sense of a place which is uninhabited, but it does not abound in vegetation according to the common idea of a wilderness. On the contrary it is a real desert, — not the smooth sandy plain of childish fancy, but rough and rocky, cut by a score of precipitous valleys a thousand feet deep and one or two miles wide. No trace of tree or field is found, the slopes are parched and barren, and all the great valleys are waterless most of the time. The Wilderness of Tekoa is merely the northern part of a greater wilderness, that of Judea, which extends forty miles from north of Jericho to south of En-Gedi and Masada, with a maximum breadth of twelve miles. This barren rugged tract, like

the Shephelah on the west, forms a bulwark of the Judean plateau.

The geological structure of the Judean wilderness is illustrated in the diagram already referred to, Figure 8, at the end of the book. East of Jerusalem the strata dip downward toward the Dead Sea for a space, or are dropped somewhat by a fault. Then, at an elevation of nearly two thousand feet below the plateau, they resume a practically horizontal attitude, and form the shelf or step which comprises the Wilderness. The general slope of the step is eastward, but this is rarely apparent. The wet-weather streams which pour down from the plateau in temporary torrents during heavy rains have cut so many gorges that the original surface is much less noticeable than the steeper, newer declivities. Because of the general eastward inclination, however, rain rarely falls, and the wandering Beduin are often at a loss to find not only grazing but water. Like the rest of Palestine, the Wilderness depends largely upon westerly winds for moisture. From the Mediterranean Sea, whence practically all the rain is derived, the winds are forced to rise steadily to the heights of Judea. Hence they deposit rain. East of the plateau, however, they descend, and are almost rainless.

Misconception as to the relation of mountains to rainfall is so common that a brief explanation may not be amiss. The statement that winds are

cooled by contact with mountains contains an element of truth, but is so far from the whole truth that it amounts to a misstatement. When air rises, no matter for what cause, the volume of air above it is of course lessened. Accordingly the pressure, which is merely the weight of the superincumbent air, decreases, and the rising air expands. With expansion gases become cooler, for the process requires molecular energy, since the molecules move in longer paths than hitherto. Energy can be obtained most readily by taking heat from the gas itself, or from surrounding objects, as is well illustrated in the manufacture of ice, where the expansion of ammonia produces a temperature far below the freezing point. Cool air, as every one knows, cannot hold in suspension so much water as warmer air. When the west winds rise from the Mediterranean Sea to the Judean plateau, the air steadily expands, and grows cooler. It cannot hold all its moisture. Hence, in winter at least, rain falls in comparatively large amounts. Conversely, when air descends, it is compressed and becomes warmer and more capable of holding moisture. Therefore as soon as the winds begin to descend to the east of the Judean plateau, they not only cease to give up moisture, but begin to absorb it from the soil, and the region becomes a desert. The faster the air ascends or descends, the more its capacity for moisture is affected. Hence the steep-

ness of the slope from the plateau to the Wilderness and still more from the Wilderness to the Dead Sea causes great aridity.

Aside from the tents of the Beduin, the only habitations of the Wilderness are holy places such as the Russian monastery of Saint George, clinging to the face of a cliff on the way from Jerusalem to Jericho, or the Greek monastery of Mar Saba, ten miles farther south. Mar Saba is supposed to be the oldest monastic establishment still inhabited, the only possible exception being the monastery of Saint Catharine on Mount Sinai. In the early days of Christianity hermits took refuge in caves of the gorge of Kidron, where the winter torrents have cut a splendid canyon five hundred feet deep in a gently arched layer of unusually hard limestone. Later they built the monastery, one small room after another, with stairways at every turn. As one looks down from the windows, or peers over the walls of the little courtyards, hawks can be seen soaring in mid-air almost where one could drop a stone upon them. We were conducted about the monastery by a mild Greek priest who had spent a year in the factories of New York and Chicago, but found the life too strenuous. As he exhibited the caves and tawdry chapels, he pointed with child-like credulity to a picture of Saint Saba, first of the holy hermits. A little beast no larger than a cat rubbed its head against the knee of the saint.

It was a picture, so he said, of the lion which on three separate occasions carried off the holy man, but was miraculously prevented from eating him. Finally the beast became so tame that it ever afterward brought to the saint's lonely cave a daily supply of food and drink. We may laugh at the tale, but we cannot destroy its meaning. It shows how in all ages, the topography of this region, only eight miles from Jerusalem, has made it a desert, a haunt for wild beasts like the lion, for outlaws like David, and for hermits like Saint Saba.

By good fortune the soldier who was to be our guide failed to appear at Jerusalem. Being obliged to trust to Ahmed, the horseboy, a negro of almost pure extraction, we obtained a vivid impression of the real nature of the Wilderness, and of its function in sheltering Judea from invasion. On leaving Mar Saba he led us northeastward among hills of soft yellow limestone, devoid of vegetation, and much less rugged than we expected. At length, however, a turn to the east brought us to the head of the lower gorge of Wadi Kumran, cut in the same hard limestone which forms the canyon of Mar Saba. At once the horses found difficulty in descending the steep rocky slopes. It was necessary first to coax and then to whip them. Deeper in the gorge, half an hour was required to persuade the frightened creatures to scramble down a hundred yards.

Instead of crossing to the trail on the north, Ahmed had led us along a goat track high on the south side of the Wadi. Suddenly we turned a corner, and found that the valley ended, and that we were on the face of the escarpment west of the Dead Sea. Lofty cliffs towered behind us, while an almost impassable precipice dropped for hundreds of feet in front. At its base rough slopes of boulders descended to a narrow plain of gravel, beyond which lay the blue sea and the escarpment of Moab with its even skyline. The great fault which limits the Wilderness of Judea on the east is of such recent geological age that there has not yet been time to wear the cliffs to accessible slopes, nor to cut any valleys except impassable canyons.

To go back was out of the question. Ahmed evidently did not know the way, and sunset was approaching. Moreover he was so afraid of the Arabs of Tekoa, who had objected to our photographing their black tents two hours before, that it would have required the lash to drive him back. To our surprise he found a track leading down the apparent precipice, and down this he forced the horses to scramble. Sometimes the poor beasts actually slid ten or fifteen feet at a time, with sprawling, clattering hoofs, which made a noise like a load of rocks pouring out of a cart. One horse rolled over on his back, and gashed the top of the saddle. Loose stones cut

the hocks of the patient beasts, and a trail of drops of blood marked the cobblestones and boulders after we had descended the cliffs. By sunset, however, we were at the level of the plain twelve hundred feet below the Mediterranean Sea. In spite of the approach of evening, the air had been growing steadily warmer, and the temperature was now seventy-five degrees Fahrenheit. Again Ahmed lost the way, stupidly crossing a well-worn trail which we afterward found led to Jericho. We wandered for hours in the darkness through a waste of low tamarisk bushes, and then among thick thorns and dusty reeds. Once we heard the sound of voices, and Ahmed pleaded in vain for cartridges to put into my companion's empty rifle. Finally we came upon soft muck along the course of a little salt stream, and were compelled to make a long détour before reaching the carriage road from the Dead Sea to Jericho, where we arrived at ten o'clock.

It was well worth while to lose our way, both in the desert of the mountainous wilderness and in the desert of the reedy, mucky plain. By so doing we were made to realize vividly the steepness of the main escarpment which separates the plateau and the Wilderness from the Ghor or "Deep," as the Jordan-Arabah depression is well called. We realized also the denseness and impenetrability of the patches of jungle nourished in the midst of the saline Ghor by underground

waters from the plateau. We were made conscious of the great separation between Judea and the country to the east, and of the part which the Ghor has played in preserving the Children of Israel as a "peculiar people." Of course, from the Ghor to the plateau there are better routes than the rough goat track which we took; but none are good, and even the modern carriage road from Jericho to Jerusalem is difficult. The value of our experience lay in the fact that what befell us was exactly what any invader who did not know the country would be likely to suffer. If the main roads were held by the people of the plateau, the enemy would try to advance some other way, and would encounter difficulties such as we experienced. If the Judean plateau, like that of Moab to the east, had been open to the desert of Arabia, its people could scarcely have remained so separate from the rest of the world, and hence could not have developed those ideas which made them so influential when finally seclusion came to an end.

Another of our experiences a few days later shows, however, that, despite its ruggedness, the Wilderness of Judea is passable by an invader of sufficient courage. From a camp at the northern end of the Dead Sea, we started one morning to move to Ain Feshkah, six miles from the head of the sea, on the west side. There a large spring, brackish, like most of the water around the Dead

Sea, flows from the foot of limestone cliffs into a pretty bay fringed with reeds. We went along the beach, towing our collapsible canvas boat, — for that was easier than rowing, when we had a load. Some salt-gatherers beside a bitter lagoon accosted us. When we said that we were going to Ain Feshkah, they held up their hands in horror.

"Don't go there to-day," they protested. "Do you want to be killed? Wait till to-morrow, anyhow. But why do you go to such a place at all? Don't you know there is a battle going on there? Did n't you hear the guns this morning? If you go now, perhaps you'll find a dozen dead bodies lying around. It's the Beni Atrieh. They have come up ten days' journey from the south, and are stealing camels, and robbing every one whom they meet. They have a feud with the Sawahri, our Arabs here in the Ghor. Don't go to-day. Wait till to-morrow. They will be gone by that time."

We camped a mile farther along the shore. Our men were not eager to go on, and a soldier who came that night with a message from the Mudir at Jericho said that he would not stay at Ain Feshkah for a pound a day, five times his ordinary pay when on special duty with spendthrift foreigners. The next day we went to Ain Feshkah. Through the field-glass we could see at a distance long lines of white sheep winding up the mountain-side in orderly files, while black goats were

scattered here and there in disorder, although they, too, were moving upward. Arabs were shouting among them, and we wondered if they were Beni Atrieh driving away stolen flocks. Our man, Abdullah, thought not, so we cautiously landed, and found that the Arabs belonged in the neighborhood. They had come down from the relatively level part of the Wilderness near Mar Saba that day to give the flocks a drink, and were now going back to stay two or three days till the animals again needed watering. They knew nothing of the raid of the day before.

The robbers had gone off to the south by the way that they had come. The easiest way for an enemy to attack Judea or the Jordan Valley from south of the Dead Sea is to follow the coast as far as En-Gedi, or Ain Jidi, as it is now called, and then strike up toward Hebron or Jerusalem; or else continue along the great step at the level of Mar Saba, and descend to the Dead Sea once more at Ain Feshkah. To follow the shore all the way from south to north is impossible, as the water beats against impassable cliffs. Twice in Hebrew history we hear of invasions by this route. Once at the dawn of history, Chedorlaomer, King of Elam, came up to chastise the kinglets of Sodom and Gomorrah for rebellion. Later, in the reign of Jehoshaphat, the Moabites and Ammonites, having passed south of the Dead Sea, gathered at En-Gedi to attack Jerusalem. No

one would follow this route often, however, or without some strong inducement. By reason of many valleys, the route, even at the inner edge of the Wilderness, is extremely hard for the camels upon which the nomads rely so completely; and mounted invaders would be at a great disadvantage if they were forced to flee from the highlanders. In modern days the Beni Atrieh and their kin often leave their camels behind, and come up on foot. They may attack their fellow nomads of the hot Ghor, but not the villages of the plateau. At most they dare do nothing more than drive off a few animals which have been brought far into the Wilderness.

The ancient invaders of the Wilderness of Judea met with one difficulty which does not confront the modern Arabs. They were obliged to pass inhabited villages. In the past, according to the Book of Joshua, the Wilderness contained "six cities with their villages." Where five of the cities lay we cannot even guess. En-Gedi alone is known. Its present desolation and the total disappearance of the others lead naturally to a discussion of the great change which has overtaken Palestine. I shall defer this, however, until a further consideration of the present characteristics of the land has prepared us to appreciate its condition in the past.

No characteristic of the Wilderness of Judea is more marked than its extreme aridity This can

best be realized by contrast with the Shephelah, on the opposite flank of the plateau. We have already seen how marked a change takes place in a single day's journey from the Shephelah at Wadi Ali through Jerusalem to Mar Saba. Farther south in the latitude of Hebron and En-Gedi, where the Judean plateau is highest, the contrast between the two bulwarks of the plateau and between the plateau itself and either bulwark is still more marked. We came to En-Gedi from Eleutheropolis in the greenest, pleasantest part of the Shephelah, where the Phœnician colonists imported Egyptian art in times of peace, and Christian martyrs found refuge in a later time of stress. Leaving Beit Jibrin, as the village near the cave of Zebina is now called, we wandered till noon of a spring day among verdant hills and valleys, amid waving fields of wheat, or over slopes dotted with villages and ruins set among graceful olive trees. Often we traversed untilled rocky hills, but even there green grass and low bushes, interspersed with gay flowers, furnished pasturage to flocks of peaceful sheep. Then we left the fair Shephelah with its perennial brooks, and climbed a narrow valley where the horses stumbled among loose bits of limestone, a characteristic approach to the Judean plateau. When we emerged upon the top of the plateau about five miles north of Hebron, the view at first seemed to consist chiefly of stones, far different from the

green hills farther west, — stones in heaps, stones in walls of fields, stones on the ground and in the paths, and stones forming the chief material in the occasional houses. Only when we climbed upon the walls or on some other elevation and looked down did we get any sight of the little fields of grain, the vineyards just coming into leaf, and the fig trees preparing to blossom. Clearly the man who would prosper in so sterile a region must work from sunrise to sunset.

In the cool invigorating air of the spring afternoon we rode on to Hebron, highest and most flourishing of Judean cities, — a pretty place, set on the tongue at the junction of two valleys, and looking down the fertile main valley. On every side the slopes above the town show the inevitable terraces. Wherever numerous small springs furnish water for irrigation, the staple crops of grain, olives, and figs are supplemented by luxuries such as vegetables, apricots, and other fruits. From below, the view is forbidding, consisting largely of stone walls; but from above, when one looks down on the green terraces, it is as fair as heart could wish. The reason for the fertility is manifest. Hebron lies over three thousand feet above the sea, and the hills around it rise to nearly thirty-four hundred feet, or seven hundred feet higher than the Mount of Olives. The rainfall is correspondingly great, and the temperature low enough to diminish evaporation.

We spent the night at Beni Na'im, a little village perched high on the eastern edge of the plateau. Until we announced that we were going to Beni Na'im, our escort, a soldier from Beersheba, mounted on a swift dromedary, had been willing and obliging. Then he became most disagreeable. He told lies about the bad roads, the wicked people whom we should meet, the danger of getting lost, and the probability that the great distance would prevent our arrival before midnight. He hung behind, and tried to delay us continually. In short, he practised every mean trick known to the oriental in order to force delay. It was only when he found that we were going to Beni Na'im if it took all night, that he brought himself to the simple expedient of telling the truth. It seems that four years previously the people of Beni Na'im had indulged in one of the quarrels which are always taking place between the nomads and the villagers on the borders of cultivation. Both sides claimed the right to cultivate certain lands lying about fifteen miles south of Beni Na'im near the ruins of Arad. Fighting ensued, whereupon the Turkish government, in its accommodating fashion, stepped in and said, "If you cannot agree and stop fighting, we will take the land away from both of you." This it proceeded to do. A three-cornered fight ensued, and one soldier, four Arabs, and fourteen villagers were killed. Our soldier, who was then sta-

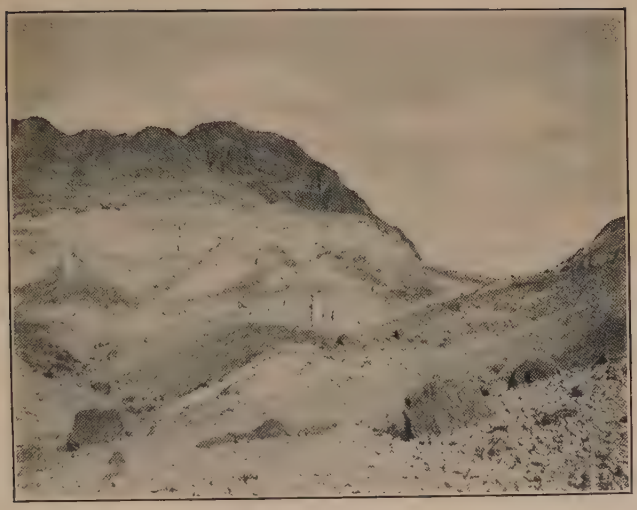
tioned at Hebron, took a prominent part in the killing, and the people of Beni Na'im swore vengeance. Naturally the soldier asked the government to transfer him to another place. Now, when I proposed to take him into the midst of his enemies, he dared not disobey and dared not go. Yet it was only after a day of lying that he could bring himself to tell the truth. Then, of course, I dismissed him. The incident is worth relating, not only as illustrating the character of the present inhabitants of Palestine, but as showing how the southern and eastern borders of Judea are in danger from the hungry sons of the desert.

Arriving at Beni Na'im, we found the village deserted, for all the inhabitants had removed to the harvest fields, as is their custom in summer. After sleeping in the streets, we resumed our way eastward, down into the Wilderness of Judea. The plateau had seemed barren compared with the Shephelah, but now, as we entered the hot, dry Wilderness, it seemed relatively fertile. At noon we were in a valley about twelve hundred feet above the level of the Mediterranean Sea and twenty-three hundred feet above the Dead Sea. Utter desolation ruled the scene. A broad expanse of gravel lay where the brook ought to be. Burning tracts of pebbly soil, bearing nothing but a few discouraged bushes, filled the rest of the broad valley bottom, and equally barren hills

rose on either side. Mr. Graham compared the great slopes of talus which cloaked the lower part of the hills below the beetling cliffs to huge ash heaps, and the scattered little bushes to a sprinkling of rusty tin cans. Only twenty-four hours previously we had been at the same elevation in the green Shephelah. It seemed incredible that two regions so diverse could lie but twenty-five miles apart, an easy day's journey for a footman. Contrast the two accompanying pictures. One was taken the morning of April 27, and the other near noon on April 28. Between them, in the short space of twenty-five miles, lies the entire Judean plateau, and the slopes which lead up to it on either side.

At two o'clock, soon after the desert picture was taken, we peered down upon En-Gedi from the brink of the main escarpment. The Dead Sea lay almost under foot, so steep is the descent. While the caravan toiled down a rocky stairway, a descent of twelve hundred feet, I climbed out upon the rocks to see what lay directly at the foot of the escarpment. There, some six or seven hundred feet above the sea, a number of steeply sloping fans of boulders and gravel have been deposited by winter torrents in the form of flat cones between the cliffs and the sea. Like vast hands they spread themselves out, with sunken hollows between the gaunt bones, and stubby deltaic fingers projecting into the sea. On the northern

fans lines of green, like delicate veins, start from two spots near the wrist, and carry water downward to a few little patches of cultivation appearing scarcely larger than the knuckles on the back of the hand. At the foot of the execrable, winding descent we dropped down in the shade beside the clear rushing water of a great spring, and blessed the little oasis. We had read of the beauty of En-Gedi, its "rush of water," its "river of verdure," and its "brakes of reeds and high bushes, with a few great trees." Yet the verdure is limited to the space of a few hundred feet, the bushes are dusty and ragged, weeds make up a large part of the vegetation, and the lukewarm water has a temperature of about eighty degrees. Ancient accounts extol the beauty of the palms and gardens of the oasis, and ruins of walls indicate that once every available scrap of land for a mile or more along the shore and back as far as the cliffs was cultivated with greatest care; yet to-day the only signs of tillage are a few unkempt cucumber fields. En-Gedi's present fame for beauty is due solely to the contrast which it presents to its surroundings. No one can reach it without being thirsty and tired. An hour before reaching the edge of the escarpment, we had met half a dozen Arabs carrying cucumbers to Jerusalem on donkeys. We were so thirsty and the cucumbers looked so green and fresh that we bought a liberal supply. I personally ac-



THE WILDERNESS OF JUDEA ABOVE EN-GEDI

GATHERING BEANS IN AN OLIVE GROVE IN THE SHEPHELAH

counted for six of no great size, but still felt thirsty. The cucumber in this part of the world is looked upon as a fruit, and one can eat it freely without harm. We should not have felt so thirsty had not Ali, the cook, with oriental shiftlessness, disobeyed orders, and failed to fill the water-bottles. We had passed a well since leaving Beni Na'im, but could get no water, as it had been carefully covered. We burned away a mass of thorns, but without a crowbar and rope found it impossible to remove the large rock which stopped the mouth. In spite of the cucumbers eight hours in the desert sun made us extremely thirsty. So when we had descended the slippery limestone slope to the spring, and had thrown ourselves down under the trees in a temperature of ninety-seven degrees, to us, as to every one else, En-Gedi seemed beautiful, although we knew it to be desolate.

To appreciate the desolation of En-Gedi, one must wander for a few hot, weary hours among the ruins. The cultivated area at present is not a tithe of what it once was. So carefully was every bit of land utilized in ancient days that little patches ten feet wide were thought worthy of retaining walls of equal height. Terraces extend along the shore for a mile, and water was brought not only from the present springs, but from others which are now dry, and from a large wadi to the south. The limits of cultivation appear

to have been set only by the amount of available land, for the terraces extend as far as possible along the shore on either side of the main fans. It is noticeable that cultivation ceased abruptly at a height of about fifteen feet above the sea, which suggests that when En-Gedi was abandoned, the level of the Dead Sea was to that extent higher than now.

When En-Gedi was famous for its palms and its vines, it must have been a little paradise. Its canals all ran with water, its terraces were covered with greenery, and its steep streets were filled with busy people driving donkeys laden with the produce of the soil. To-day Ain Jidi, to use the modern name, is uninhabited. We saw no one there on the afternoon of our arrival, but in the morning an Arab appeared. He had hidden the night before, fearing that we might rob him of his knife and flint and ancient rags; he had not seen that we were "Franks." About fifteen people raise cucumbers here, he said, but dare not cultivate any crop which would require them to stay long, because their enemies would rob them. Only four or five days before our visit a hostile clan drove off five or six donkeys belonging to the Arabs of En-Gedi. The cucumber people use all the water of the main springs, but might get as much more from the big wadi to the south, so the man said, if they were not afraid that if they built a canal their enemies would reap

the benefit. Yet even if all the available water were utilized, it would be utterly impossible to cultivate as much land as was formerly under irrigation. Perhaps a fifth might be cultivated; certainly nothing like half. For the present we shall not enter further into the discussion of the change which has overwhelmed En-Gedi. It shares the fate not only of the Wilderness of Judea, but of many other wildernesses, and all alike are full of desolation.

# CHAPTER VI

## THE PARCHED LAND OF THE NEGEB

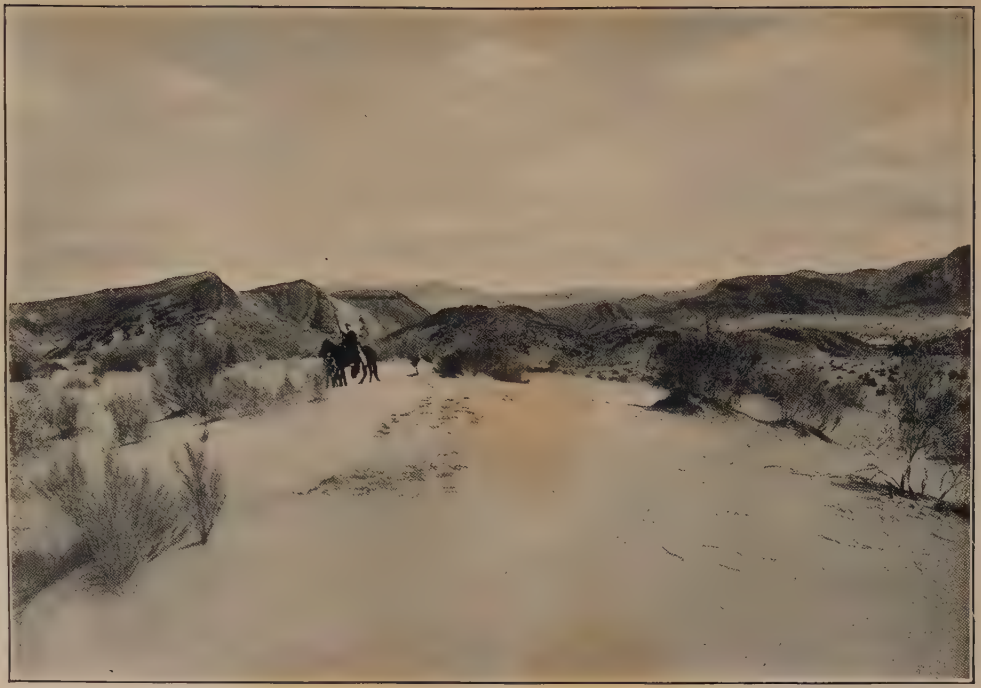
TEN or fifteen miles south of Hebron the Judean plateau begins to fall off toward the "Negeb," the "South," as it is translated in the Authorized Version, the "Parched Land," as it should be. The region is an uninhabited desert with no permanent villages except Beersheba and the government post of Aujeh. Bounded on the east by the Ghor, on the north by the Judean plateau and the Philistine plain, and on the west by the sea, it extends southward indefinitely to merge into the Tih, the plateau of northern Sinai. Though somewhat mountainous in the east along the borders of the Ghor, most of the Negeb consists of low hills of gentle slope decreasing in altitude toward the coast. The absence of high mountains or sudden ascents reinforces the southern latitude of the region in rendering the rainfall slight. Hence the Parched Land deserves its name. The unscientific traveller finds it a dreary region almost devoid of human interest. The scientist, however, becomes interested in the evidences of a former dense population, and in the effect of former fertility in protecting Judea from invasion on the south.

A journey from Edom to Hebron across the northeastern corner of the Negeb introduced us to the country. Our acquaintance was continued by a ride from Hebron southwestward through Beersheba to Aujeh on the Egyptian frontier, and then north to Gaza. On the map Edom appears close to Judea. The steepness of the escarpment which faces the Negeb on the west of Edom, however, and the lack of water and danger from robbers in the Parched Land itself, widely separate the two plateaus. To reach Hebron the modern Edomites prefer to go far north around the Dead Sea, rather than face the difficulties and dangers of the direct road across the Negeb. At Tafileh, high in northern Edom, we searched for a guide to Hebron. Messengers sent out by the local officials scoured the town in vain. One man after another refused to go. Most knew nothing of the road, although Hebron is but fifty-five miles distant; and the few who knew, dared not return alone. We had almost decided to find our way guideless, when a young man named Faris agreed to accompany us for twice the usual compensation. "This man is exactly the kind for you," remarked the chief of police triumphantly. "He is a very bad man, a robber, and not afraid of anything. Look out that he does not lead you among robbers."

By noon we had travelled two thirds of the day's march horizontally, and hoped to make an

early camp near the Dead Sea, ready to enter the Negeb in the morning. Vertically, however, only a third of our march was completed; there remained a descent of three thousand feet down the rugged Edomite escarpment of red sandstone. Apparently we must jump straight over the precipices; but hour after hour the road wriggled this way and that in a way that would have made us giddy, had we not been forced to proceed with painful slowness. Sometimes we sprang from boulder to boulder, while the horses picked their way as best they could. Again we traversed smooth sloping rocks easy for the men, but most difficult for horses, with no hands to aid them when they slip. The beasts kept their footing remarkably. Several times they half fell, but only once with serious results. Then the weakest horse became wedged between two masses of solid rock in such a way that he could not get up. Finding that the caravan had stopped, I went back and found the men stupidly beating him. They were caravan men by profession, and had been used to horses all their lives, but they seemed to think it better to kill the horse with blows than go to the labor of unloading him. Even without his load he could not rise. Only by putting a rope under him, and lifting the front part of his body could we get him up so that he could keep his footing on the slippery stones.

When we thought ourselves at the bottom, an-



THE ARABAH SOUTH OF THE DEAD SEA, LOOKING EAST TOWARD EDOM

other steep bench dropped off in front of us, and all our troubles began again. In seven years of travel in Asia I remember no more frightful road. We reached the bottom long after nightfall, weary not only from walking but from the heat, which had increased to a temperature of ninety in the latter part of the long descent. To make matters worse, although off to the northwest over the Dead Sea and the Wilderness of Judea the sky was almost clear, clouds had been gathering along the top of the eastern escarpment, and an hour or two after sunset rain began to fall. We could not find the Arabs of the Ghor, who live in miserable little tents in the oases where streams from the eastern plateau flow out upon the floor of the Arabah. Therefore we camped as best we could. The men were soaked that night, for they had no protection.

The next day, after prolonged search for the trail among dense reeds, grasses, and tamarisks, we spent two hours in riding three or four miles westward across the Sebka, to the borders of the Negeb. The Sebka is a plain of saline clay at the southern end of the Dead Sea. Not long ago it was part of the sea; and the soil is still so saline that plants grow only in occasional places where streams have partially washed out the salt. The rain had made the clay not only dangerously slippery, but so soft that we were obliged to make constant détours around spots where the horses

would have been mired. As we approached the west side, the mud was noticeably less soft, for less rain had fallen there. Reaching the edge of the Sebka, we turned northward along its western border, passing a few springs so saline that we did not try to drink them, nor let our horses drink. Then we rode along the west coast of the Dead Sea, past the famous Jebel Usdum, a great mass of lacustrine deposits, partly clay and partly salt, laid down thousands of years ago by the Dead Sea when it stood much higher than now. Usdum has been supposed to preserve the name of Sodom, but there is strong reason to believe that Sodom was at the other end of the sea. At five o'clock we reached the ruins of a small mediæval castle in the mouth of the narrow gorge of Zuweira, which sometimes, although wrongly, I think, has been supposed to be Zoar. Here we expected to camp, but the rocky pool, where water is generally found, contained only a cupful for the men, and none for the horses. Evidently it had not rained here the night before, nor for many days. Faris hoped to find water two hours ahead; but after trudging an hour till sunset and two hours more in the twilight and dark, he sat wearily down by the trail, and said that it was of no use. The water for which he was looking was a small cistern, and at any time we might pass it in the dark. After a scanty supper of dry bread and cheese we lay down to sleep in the

open air, hoping that the clouds which had been pouring rain upon Hebron might give us a drink and yet not drench us. Not a drop of rain fell, however, for we were still on an eastward slope where the westerly winds descend. The night before we had been soaked because we were at the foot of the upward slope east of the Dead Sea; to-night, being on the opposite slope, we were thirsty. Fortunately neither the men nor the horses suffered from thirst, for the temperature fell to fifty degrees. Still we were all eager to reach water as early as possible in the morning.

From our desert camp at an elevation of nineteen hundred feet above the Dead Sea or six hundred above the Mediterranean, we rode northwestward mile after mile over gentle slopes of rock and gravel, with here and there a rare bush a foot high. The Negeb is here a wilderness of rounded hills, rising by steps to the Judean plateau. Each step marks an improvement. Not far from camp we found traces of a little aqueduct at Mureg Asharan, but whence it derived water no man knows. A little farther on, the country began to have the faintest tinge of green. Here, too, in a valley absolutely dry, we found signs that once upon a time man lived and cultivated the soil. For what other purpose would he build an old irrigation canal of stones? Then we passed a ruined cistern and a dry well, and after three and a half hours of travelling came to the cistern

of Jugma. There we found water and nomads, and gladly dismounted. The bloated carcass of some small beast floated in the middle of the deep pool into which the blue-gowned Arab women cast leather buckets at the end of long ropes. Nevertheless we drank as heartily as did the crowding, pushing flocks of goats and sheep.

Then we rode on, northward now, straight up the slope, away from the Negeb to the high part of the plateau south of Hebron. Not until an elevation of twenty-five hundred feet above the Dead Sea was reached, — twelve hundred feet above the Mediterranean, — did we pass the ruins of a genuine village, but even there no signs of cultivation by the men of to-day could be found. Only after another mile and a half of easy climbing did we come to the first fields. Then, as we rose higher, the country rapidly improved. The wheat-fields appeared green and flourishing in the better portions, and were decked with patches of red poppies, little blue flowers of a trumpet shape, or yellow tansy and mustard. Among the ruins of the large village of Kureitein we passed the huts of a few villagers who dwell there part of the year to care for the fields and tend the abundant flocks which dot the green slopes.

Finally the last ascent, up the hill north of Kureitein, took us to the highest part of the Judean plateau, three thousand feet above the

Mediterranean, and all the land was clothed with dripping green. We knew that the wet grass would become dry as soon as the sun appeared, that the greenness would last only two or three months, that ruins were more numerous than villages, and that a quarter of the view was naked rock. Yet, as we came up from the deserts of the Arabah and the Negeb, Judea seemed very pleasant, a land of crops and flocks, with groves of olive trees clustering around the distant villages perched here and there on hilltops. It was hard to believe that this same plateau had seemed most barren and sterile when we ascended to it from the fertile west. One wonders that so attractive a land has not oftener been invaded by the people of the desert. The escarpment of Edom explains why the inhabitants of the country to the east rarely come this way. We shall see later why it was not invaded from the south. Once, to be sure, after the captivity, Hebron was long in the hands of the Edomites, but that was only an incident. For the most part the southern portion of Judea has been almost as Jewish as Jerusalem. Before David drove the Jebusites from the stronghold of Jerusalem, he ruled seven years in Hebron. Long before that time Abraham, as the story runs, chose Hebron as the most favored part of the Promised Land; there, in the cave of Machpelah, he laid his beloved wife to rest after his wanderings back and forth between

Palestine and Egypt. There his sons and grandsons succeeded him. The Hebrews in those days had more interest in Hebron than in any other part of Palestine; yet it was not to an Israelite that the final conquest of the place was attributed, but to Caleb, the Kenezite, a stranger among the invading Israelites.

The Judean plateau seemed populous as we came up from the desert of the Negeb. As we rode south from Hebron a few days later, it seemed empty and uninhabited. Sometimes we met one or two men with camels; among the dark scrub oak of the remoter hills flocks of white sheep or goats grazed at long intervals. Not a village lay on our way for twelve miles until we reached Dahariyeh, the ancient Debir which resisted the Israelite invaders so strongly that Caleb promised not only the frontier town, but his daughter as a reward for its capture. In ancient days villages and people must have been far more numerous than now. Everywhere we noticed walls enclosing old fields, some of which might now be cultivated, although others are devoid of soil. Everywhere the soil seems to have been washed away to a great extent, and the process is not finished.

Farther south, as we began the descent from the plateau to the Negeb, the present poverty of the land contrasted still more strongly with evidences of prosperity in the past. South of

Debir the land falls away steadily, the valleys become wide and open, and the hills assume a low, rounded form with relatively little bare rock in sight. Such a land ought, it would seem, to be fertile and populous; and the heavy showers which drenched us made the region appear well watered. Yet in the fifteen miles from Debir to Beersheba we saw no sign of any village, merely three ruins and the tents of some Beduin. Verdure was not absent, but signs of aridity and drought were the most striking feature. As soon as we left the plateau, bushes disappeared, and the country was barren except for thin grass on the hills, and stunted grainfields in the broad valley of the Wadi es Seba. Below a level of two thousand feet the fields were ruined, for this was the first rain for two months. Grain which should have been eighteen inches high and well headed out was only three inches high and not worth cutting. In many places camels and flocks had been turned into the fields to glean what scanty fodder the crop might afford. The Arabs, who cultivate this region as an adjunct to their pastoral pursuits, had taken most of the flocks, however, to the plateau or the Philistine plain in search of more abundant water and forage. The government officials at Beersheba informed us that the movement of the Arabs had so depopulated the country that they had had no business for a month. Another

effect of the drought appeared in the statement of our thoughtful host at Hebron, Dr. Patterson of the Presbyterian Hospital, who said that during the spring of 1909 he operated upon gunshot cases to an extent unprecedented in his sixteen years in the country. The Arabs, under pressure of drought, had invaded the territory of the Fellahin farmers, with quarrels as the inevitable result.

The most noteworthy feature of the Negeb is the evidence of the ravages of drought, both past and present. Beersheba illustrates the matter. In Biblical history the place first appears as a resort of nomads, where Abraham, or, in another account, Isaac, dug a well and made a covenant with Abimelech, chief of the Philistines, whose men had quarrelled with those of the Hebrew patriarch. Later it became so important a town, that the well-known phrase from Dan to Beersheba stood for the whole extent of Palestine from end to end. In the New Testament, Beersheba, like Hebron and other large towns, is not once mentioned, but it was doubtless an important place. On the low hills above the ancient wells which lie in the broad Wadi es Seba, ruins spread to a circumference of nearly three miles. Most of the visible ruins belong to the early centuries of the Christian era, when the town, or "very large village," was important enough to be the seat of a Roman præsidium and a Christian bish-

opric. Later the place fell into absolute oblivion. Probably it was abandoned and reoccupied many times, but of this we cannot speak with certainty. In recent times it contained no permanent inhabitants until 1899 or 1900, when Turkish rule had been well established in southern Palestine. Then a few traders settled here. Soon afterward Beersheba was promoted to the rank of a vice-mutessariflik subject to the mutessarif of Jerusalem. The government attaches especial importance to the town because of its character as a trading centre from which the surrounding Arabs can be controlled. In 1909, at the time of our visit, the village was a straggling little town with good government buildings, a long line of shops down the main street, and dwelling-houses for about eight hundred people on side streets. A muddy torrent, gone in a few hours, was rushing down the broad gravelly channel at the foot of the gentle slope on which the village lies. During the night the rains on the plateau near Hebron so augmented it that the water overflowed into the business street, and a shop was carried away.

Inasmuch as Beersheba contains no regular place for the entertainment of strangers, we went to the government buildings and were given a room in which to spend the night. A crowd of soldiers, glad of anything to break the monotony, pushed into the room in eastern fash-

ion, politely enough, but not in a way enjoyable to the occidental. We were delighted when a young official in a blue uniform invited us to become his guests. Said Khalifa, chief of police at Beersheba, was from one of the best families of Jerusalem, and we much enjoyed his hospitality. As rain fell heavily till afternoon the next day, we stayed with him two nights, and spent the day in conversing in Turkish.

Said Effendi's story not only illustrates oriental methods of business, but throws light on the history of Beersheba. Four years ago the mutessarif of Jerusalem commissioned Said to ferret out some counterfeiters. He took with him a friend, and the two disguised themselves as poor Arabs, letting their beards grow, and wearing wretched clothes. For three months they frequented the worst parts of the city, and at length detected the counterfeiters. Two months more were required to locate the apparatus, and another three to surprise the men when actually at work. The chief counterfeiter was a Jew, but both Mohammedans and Christians were among the thirteen who were arrested. For all this Said Effendi received no reward except a police commissionership in the remote village of Beersheba with a salary of eleven dollars a month and perquisites. He determined, however, to make use of his opportunities. Seeing hundreds of square miles of good land lying uncultivated, or only tilled in the slip-

shod manner of the Arabs, he decided to go into farming. Leasing some land from the government, he obtained a good crop of wheat. Thus encouraged he combined with two partners from Jerusalem and leased 50,000 dunums of land, which amounts to about 7500 acres. For this they paid 150,000 piasters for a three years' lease, or at the rate of about $2000 a year. In 1909 they planted a considerable area, spending nearly $1500 for seed, and probably as much for labor. The rains were so scanty and fell at such inopportune times that the entire crop failed absolutely, and they did not get back a single cent of their outlay. Each man lost at least $1500, which is equivalent to four or five times as much in America. They planned to make another attempt the succeeding year, but how it succeeded I do not know. A succession of bad years like those in the sixties and seventies would inevitably put an end to all attempts to cultivate the land around Beersheba. It would be left once more to the nomads, who, when the crops fail, can rely upon their animals for sustenance.

Beersheba lies just beyond the border where permanent cultivation is possible without irrigation. Under present conditions a large town like that indicated by the ruins could scarcely grow up, unless radically new methods of agriculture were introduced. Irrigation has never been practised here, although with modern

mechanical skill it might be possible. Now, as in ancient times, the seven wells are used only to furnish drinking water. There are signs of progress, however, for a steam pump run by gasoline has been established by the government at one of the wells. It is operated two hours a day and pumps water enough for the whole eight hundred people. Most of the inhabitants draw water from the public cisterns into which the water is piped. Twelve or fifteen houses have their own small cisterns, for which they pay a water rate of eight mejidiehs, or six and a half dollars, a year. Some of the houses which have cisterns use the water for small gardens containing bananas, palms, and other sub-tropical plants. Probably a considerable amount of water might be pumped from the deep gravels in which the drainage of the Wadi es Seba is largely lost. Only in this way can any considerable agricultural population be supported permanently around Beersheba at the present time. Yet in the past, if the ruins of Beersheba itself and of the outlying villages are any guide, a large, permanent, agricultural population must have depended upon rainfall, not upon irrigation.

A ride of thirty miles south-southwest to Aujeh, and then fifty miles north-northwest to Gaza, strengthened the conclusion formed at Beersheba, and threw further light on the great change which has transformed Palestine. Crossing the

muddy channel of the Wadi es Seba, already almost waterless after the flood of the day before, we traversed low rolling hills with slopes so gentle that little soil has been washed away in spite of the dryness, and naked rock is rare. A large part of the country is under cultivation, but we saw no sign of any crop, although in April the grain should have been at its best. Here and there a few Arabs were tented beside heaps of earth like huge beehives six feet high, under which much straw and a little grain was stored. Every mile or two we came upon the strange sight of a camel drawing a plough, perhaps with a baby camel running alongside. Or else we passed a group of three or four Arabs coming down from the north with primitive wooden ploughs swung on the sides of their slow-stepping beasts. The news of the rains of the past few days had already reached the nomads near Hebron and Jaffa, and they were hastening back to plant a little millet, in the hope of having something to eat next winter aside from the products of the flocks and herds. Furrows are ploughed about three or four feet apart, and in these the seed is planted. Millet will grow in the driest land, provided water is abundant at the start and the sun is warm enough to promote rapid growth. It makes wretched bread, but even that is far better than nothing.

Three hours from Beersheba we entered a

region where drifts of yellow sand are piled to a height of ten or twenty feet. The hills face eastward, having been formed by west winds. They are not moving now, but are covered with sparse short grass and bushes which give to many of them a dark hue. Between the sand hills little patches of crude cultivation occasionally run well up on the sides of the dunes. The sand was evidently piled up at a time when the country was drier than now, but there is nothing to indicate when that time was. The comparative freshness and softness of the dunes suggest that the dry epoch which gave the final touches belongs to historic times, dating back hundreds rather than thousands of years.

Almost in the midst of the sand, the extensive ruins of Khalasa extend along the north bank of a broad wadi for nearly three quarters of a mile, with smaller ruins on the other side. Carved columns and capitals of chalk or limestone show that architecture was highly developed here in the early centuries of the Christian era. Although the place appears to have been almost as extensive as Hebron, which has a population of twenty thousand, there are no permanent inhabitants at present and no houses. The single well, on the plain just above the low bank of the broad dry stream-bed, must have been used for ages, for the limestone blocks at its mouth are not only grooved to a depth of three inches, but the

A WELL WORKED BY HORSE-POWER AT BEERSHEBA

ARABS PLOUGHING FOR MILLET IN THE NEGEB

groovings are gracefully fluted, like those in the soft chalk of the caves at Beit Jibrin.

Six miles farther south Ruheibeh, the ancient Rehoboth, tells the same story of drought and abandonment. In the days of Isaac, as now, the population appears to have been nomadic, for the wandering patriarch dug here a well, and for once the Philistines did not try to wrest it from him. Later, to judge from the ruins, agriculture prevailed, and a prosperous village contained one or two thousand inhabitants. An additional number lived in the gardens and fields roundabout, where we found remnants of old walls six feet thick. The amount of cultivation carried on here at present is even less than at Khalasa, although a few poor fields are sporadically tilled. Something must have changed greatly in two thousand years.

South of Ruheibeh sand begins at a distance of about six miles, and continues almost to the broad bed of the Wadi Aujeh. The country is even more desert than that farther north, but ruins are as abundant as ever. At half-past nine at night, after much wandering in the dark, the light of distant fires guided us to the ruins of Aujeh. There we found about a hundred soldiers and workmen encamped in tents. Within a year the government had established a kaimakamlik for the purpose of keeping the nomadic Arabs in order and making them settle in permanent

houses. The Turkish officials are full of schemes for persuading the Arabs to give up the wandering pastoral life and engage in agriculture. The schemes are highly commendable. They would put an end to frontier raids, would bring the Arabs within the reach of the government at all times, and would increase the taxes and the number of men who can be called upon for military service. The Arabs naturally object to being deprived of their freedom. Still large numbers of the poorer ones would be delighted with any change which would insure them a sufficient supply of food throughout the year. For months each year many are hungry, with genuine, gnawing hunger. The only trouble with the official plans is that the land on which the nomads are urged to live is so dry that it cannot yield a living. No matter how industrious a man may be, he cannot raise crops without either rain or irrigation.

We spent the night at Aujeh in a tent kindly put at our disposal by some soldiers. In the morning one of them turned over a stone which was holding down a tent peg, and showed us a Greek inscription. Before we left the place we had found six others, all on Christian gravestones newly discovered in the work of preparing government buildings. Then the kaimakam, the official in charge of the forlorn attempt to found a town, came to call. Leading us to the ruins of an old

church, upon the foundations of which he is now erecting a guest-house, he ordered the workmen to uncover a beautiful mosaic inscription, forming part of the ancient floor. All the inscriptions have been kindly read for me by Professor C. C. Torrey. The mosaic relates how in the year 496, apparently of the era of Gaza, the monk Sergius, a man named Pallut, a woman whose name is lost, and Deacon John, her son, built the church as a thank offering for preservation in time of danger. The other inscriptions are of value chiefly as a means of obtaining dates. They range from 436 to 519 according to their era, which would mean from 375 to 458 A. D., for the era of Gaza began in 61 B. C. Inscriptions in other parts of the Negeb offer additional proof that as late as the fifth century after Christ the country was still highly prosperous. Aujeh, like Damascus, Palmyra, Jerash, Madeba, Jerusalem, and a score of other Syrian towns of the period, was adorned with Græco-Roman colonnades along the main streets. In Aujeh the masonry bases of the columns can still be seen along two parallel streets, about five hundred feet apart and six hundred feet or more long. In the fourth, fifth, and sixth centuries Christianity dominated all Syria. Aujeh contains the distinct ruins of three well-built churches in the lower city, and one within the large castle high on the hilltop. Further excavation will probably disclose others, for Aujeh must

have been a town of well-nigh ten thousand inhabitants.

In addition to the ruins of towns and large villages, the Negeb is full of traces of a numerous suburban or country population. For instance, both north and south of Khalasa, especially in the small side valleys, traces of country houses can be plainly seen. Around them walls or terraces of old fields, orchards, or gardens can be detected. These begin at least three quarters of a mile north of Khalasa, and extend a mile and a half south of it. Search in the valleys away from the road would probably disclose them at even greater distances. More than two miles north of Ruheibeh we came upon similar evidences of a dense suburban agricultural population. South of the town the valley up which we ascended was full of walls for terraces. Some of the walls were six feet broad at the base. None show a height of more than a foot or two now, but some were probably once high enough to protect fruit or other products from thieves. At Aujeh we ourselves saw that terraces abound in the small valleys for a mile and a half north of the city; and the soldiers told us that in some directions they extend at least two hours' journey, which ought to mean six miles, but may mean only three or four. The men who told us this also said that in the cemetery, of which we saw traces north of the town, they had excavated a few graves in their

search for building stone. In several they found tear-bottles. In one they came upon the body of a man still clothed, but both the body and the clothes crumbled to pieces as soon as touched. The soldiers seemed much interested in the fact that the man was not a Moslem, as they judged by his apparel and position. He wore what they termed a hat.

The walls and terraces just described were evidently not designed for crops such as the wheat, barley, and millet which alone can now be raised in the Negeb. They were manifestly intended for more intensive agriculture, for olive groves, vineyards, orchards, or vegetable gardens. To-day, except for the few tiny gardens watered by the gasoline pump at Beersheba, no trace of such plants is found in the Negeb, unless it be one or two grapevines which the officials of Aujeh have nursed through the droughts. General agriculture in the Negeb is to-day absolutely out of the question. Yet in ancient times varied crops including fruit must have been raised over broad areas in the suburbs of all the towns, while the cultivation of wheat and barley or other cereals must have occupied a large part of the outlying districts, for otherwise it would have been impossible to obtain food for such large towns.

Such extensive cultivation left little room for Arab nomads. Another fact also points to their absence. Wherever nomads are in contact with

a settled agricultural population, raids are almost inevitable. On the appearance of hard times the nomads plunder the agricultural folk, who do not feel the pinch of want quite so readily. Therefore in all such regions the agriculturists gather closely into villages. No one dares live apart by himself. Around Khalasa and Aujeh, however, the ruins seem to show that part of the population, during a portion of the year at least, lived at a considerable distance from the towns in isolated houses, just as they do in the moister, safer parts of Palestine farther to the north. Doubtless the strong hand of the Roman government had much to do with the matter, but Rome itself never made it safe to live in unprotected isolation among migratory Arabs. Therefore we must conclude that in those days the Arabs did not wander here, but farther to the east and south.

Any exact estimate of the population of the Negeb in former times is impossible, but we can gain some idea as to conditions then and now. At present the district from the Judean plateau southward for fifty miles is so nearly a desert that the settled population, consisting largely of officials and traders, does not exceed one thousand people. The remaining inhabitants are a few nomads, probably not over one or two thousand, who cultivate the land in a slipshod way, but rely upon flocks and herds for their main sustenance.

The populousness of the old towns may be judged from what has already been said, and from the following estimates made by Mr. John Whiting of Jerusalem. He has travelled extensively in the Negeb and is familiar with most of its ruins. He includes not only the places already mentioned, but others which we did not see. He estimates that Khalasa had about 10,000 people, Ruheibeh 3000 to 4000, Aujeh 6000 to 7000, Es Beita 10,000 to 12,000, Abdeh 8000, Birain 8000. Of course these are only rough estimates, but they are conservative. They do not include all the ruins, nor do they take account of the large population which clearly dwelt outside the cities. As they stand they indicate a population of 45,000 to 50,000 people in the main towns, as compared with less than a thousand to-day.

In view of the populousness of the Negeb, the Biblical account of the first attempt of the Israelites to enter Palestine gains a new significance. The story of the wanderings of the Exodus may be regarded as legendary or as actual history; in either case the account represents the condition of the country as known to the Hebrews. According to the simplest interpretation of the Biblical story, the Israelites were a nomadic tribe or congeries of tribes who invaded Palestine, and finally settled in the hill country. Part of them, moving up from the south, came in contact with the Amalekites, and attempted to pass through

their land. A battle ensued in which the Children of Israel would have been utterly routed save for the divine aid which came to them so long as Moses held up his hands, and which continued even when Moses was so weary that his hands had to be supported by his lieutenants, Hur and Aaron. In spite of this the Israelites were forced to turn back; for the Amalekites who dwelt in the cities of the Negeb were too strong for them. Later the Hebrews wished once more to pass through the Amalekite cities. Joshua sent spies who readily traversed the Negeb to the plateau, and came back with a glowing report. The fear of Amalek was still upon the nomads, however, and they turned away once more, to wander in a great circuit around the inhabited regions of Edom, and to come in from the east across Moab. In those days the Amalekites of the Negeb were probably an agricultural people, perhaps possessing large flocks, but dwelling in the towns which the Christians of later days adorned with colonnades and churches. The Children of Amalek long held the land; and were among the most troublesome enemies of Saul and David in the days when the Israelites at last became a nation. They were always regarded as foes of the Hebrews; but their presence and that of their successors was actually a source of strength. They served as a barrier to keep out wild tribes in later days, just as they kept out the followers

of Moses in earlier times. The populousness of the Negeb thus supplemented the ruggedness of the escarpment of the Arabah in protecting Judea on the south, where it was most liable to invasion.

We can scarcely leave the Negeb without attempting to understand how a land which is now so poor could support so large a population in former times. An adequate discussion of the matter must be deferred until we have surveyed other parts of Palestine and its borderlands. Here we shall merely attempt to understand the nature of the transformation which has overwhelmed the Negeb. Clearly the ancient inhabitants depended chiefly upon agriculture, for by no other means could so many people gain sustenance. They did not rely to any extent, if at all, upon irrigation; for not only have no traces of canals been found, but a large number of the evidences of ancient cultivation are located on hillsides, or in minor valleys where irrigation would be impossible, even if there were sufficient water in the main wadies, which is now far from the case. If canals had formerly been built, their ruins ought to be as evident as those of the insignificant little terraces where the actual process of cultivation was carried on. We are forced to conclude that the former population, even when most dense, depended upon crops which were watered chiefly, if not wholly, by rain.

To-day the Arabs also depend upon the rain, but by no means in the same way. The crops are not their main source of livelihood; their flocks support them in times of scarcity. The ancient people cannot have depended upon flocks to any great extent. In the first place, pastoral people never build large towns. In the second place, it would be a physical impossibility for the Negeb to support flocks in sufficient numbers to afford a livelihood to a population so dense as that which once existed. We are forced back to the conclusion that the ancient inhabitants of the Negeb relied mainly upon crops supported by the ordinary rainfall.

When the Negeb was somewhat densely inhabited by an agricultural population, the crops must have been far more uniform in quantity than now. I questioned various people as to the proportion of years in which crops fail. An Arab merchant from Gaza, in whose tent we took a meal at Khalasa, said that he had known the Negeb eight years. In that time the crops of the first five years were good, that of the sixth year, 1907, was a failure, that of 1908 was excellent, and that of 1909 again a failure. The camel-soldier who feared to go with us to Beni Na'im said that he had known the country seventeen years. In recent years, so he said, the crops had been as the merchant recounted. Before that some years were bad and some good, so that of the seventeen he

reckoned twelve as good, and five as bad. A second merchant, more intelligent than either of the other men, indeed one of the most intelligent whom we met, had known the country thirty-five years. He thought that the crops had failed nearly half the time. When I asked what the poor people did in bad years, he said, "To some we give work. To those for whom there is no work, we who have store of grain laid by give food till the hunger is over." Finally at Gaza I talked with Herr Gatt, a missionary priest who came here from Austria thirty years ago. Since then he has lived alone, ministering to his little charge of eighty souls, teaching the parochial school, entertaining the few foreigners who visit Gaza, and, as his favorite occupation, studying archæology and writing a learned book on ancient Jerusalem. "Within ten miles of Gaza," he said, "I have known the crops to fail but once in all the thirty years that I have been here. Of course they are sometimes poor, but except in that one case, there has always been enough so that the people could live. Beyond the Wadi Sheriyah [eight miles to the south], I should say that they had failed about ten years out of the thirty." From these four statements it is evident that the years from 1900 to 1908, that is, the years during which the modern village of Beersheba has grown up, have been unusually favorable. In the long run we seem justified in accepting Herr Gatt's estimate

that the crops of the Negeb fail one year out of three. Of course there must be variation from place to place. At Beersheba the proportion is probably less than one in three. At Aujeh, farther south, where there is much less cultivation, it must be more. Manifestly under such conditions large towns like ancient Khalasa or Aujeh could not possibly exist. Small villages might be founded in a series of good years, but when the bad years came, the villagers would be compelled to starve or move away. Part would go to better-watered regions; those who stayed would increase their flocks of sheep and goats or their herds of camels, and would become nomadic. Large towns with wealth sufficient to build handsome churches, fine colonnades, and other public structures could not possibly exist.

The statement of Herr Gatt that he has never known the crops to fail but once north of the Wadi Sheriyah brings up the interesting question of the limits of cultivation. Travellers in the East state again and again that the limits of cultivation are constantly being restricted by the nomads. Doubtless this is true on certain occasions, that is, at times when some special cause, such as the exceptional drought of the spring of 1909, drives the Arabs out of their accustomed haunts. On the whole, however, it does not seem to be true. As a general rule cultivation is pushed as far into the desert as it possibly can be, as is

well illustrated by the way in which the Arabs south of Beersheba carefully cultivate the land each year, although they know that the crop will fail one year out of three. In the same way neither the Arabs nor any other people whom I have met during many years of wandering in Asia ever practise nomadism if they live in a country where agriculture yields a secure livelihood. If the crops are precarious, nomadism in some form is the rule. If the crops are sure to yield a fair return practically every year, the pressure of increasing population inevitably forces the inhabitants to practise agriculture and give up nomadism, or at least to wander for only a few months each year. Hence, if the inhabitants of a region which has long been populated practise nomadism, we may infer that for some reason agriculture is not sufficiently profitable, and some resource is needed upon which to rely in bad seasons.

On the way from Ruheibeh to Gaza we rode for ten or fifteen miles through sandy wastes, all brown and bare, where the Arabs were trying to insure themselves a little something to eat next winter, by sowing millet. Then, for ten miles, as we went farther north and approached the sea, we rode through the fine plain of Fara, full of great ruins. Its abundant fields of grain were not absolutely ruined in 1909, but were so poor that the decimated crop could not be cut with a sickle. We found the Arabs plucking by hand the short

stalks of sparse barley, which they, in their utter poverty, thought worth saving. The reaped places looked almost like the unreaped. Probably few fields in the whole plain yielded the harvesters as much grain as they sowed. Yet once the plain supported great towns. One wonders where the ancient people procured water. We found the Arabs drinking water which they had brought two or three miles from the lower part of the Wadi es Seba, where pools stand far into the summer. Wells might be dug, but no one feels like running the risk. As we rode along, our escort pointed out a place near the ruins of Khurbet Abu Khalyun, where an Arab chief is reported to have spent two hundred pounds in digging a well. When it was finished the water was too salty to drink.

At the northern end of the plain of Fara conditions improve. When we reached the Wadi Sheriyah, eight miles from Gaza, and an equal distance from the sea, the crops were passable, though not particularly good. Within a mile or two after we reached the region of good crops, our guide informed us that the fields of the Arabs had come to an end. Here the land belonged to the Fellahin, whose village he pointed out half a mile away. Permanent habitations always begin where permanent agriculture becomes possible. If the fields happen to belong to rich nomads, as they do in the region already mentioned around Tell el Hesy between Gaza and Hebron, there is

nevertheless a settled population; the servants of the rich men live in houses, and do not wander.

To-day the southernmost border of profitable agriculture runs from the Wadi Sheriyah eastward to Debir and the other villages on the southern border of the Judean plateau. This, too, is the boundary between the domains of the nomadic Beduin and the agricultural Fellahin. In former days the boundary ran farther south, certainly fifty miles away and possibly more. The change in the boundary does not seem to be due to any human action unless man has somehow changed the amount of rainfall. It is part of the great transformation which has been the Nemesis of Palestine.

## CHAPTER VII

### A CONTRAST OF PHYSICAL FORM

"Jews have no dealings with Samaritans." The Apostle John probably thought that he was treating of a purely psychological phenomenon when he wrote this brief parenthesis in the beautiful story of Jesus and the woman of Samaria. He desired to put his non-Jewish readers in possession of a peculiar fact, which explains the surprise with which the woman answered Jesus' request for a drink. Whatever may have been the thought of the writer, his remark was geographical as well as psychological. It sums up the effect of the physical form of the provinces of Judea and Samaria upon the ideas and history of the inhabitants. The freedom of the woman in conversing with a strange man was typical of the openness of Samaria to outside influences. Her question, "How is it that thou, being a Jew, askest drink of me, who am a Samaritan woman?" was the natural result of the exclusiveness which Judea had fostered in the Jews. The disciples, although Galileans, were so far imbued with the spirit derived from centuries of Judean ancestry that, on their return from buying bread, they marvelled to find Jesus talking with the woman. Neither

MOSQUE OF EL AKSA, SILOAM AND JUDEAN PLATEAU
LOOKING SOUTH FROM THE TOP OF THE MOSQUE OF OMAR

WOMEN OF SAMARIA AT SEBASTIYEH

they nor she had the faintest idea that the attitude of both was merely the reflection of the fact that Judea, in the language of physiography, is a maturely dissected plateau of hard horizontal limestone, while Samaria is a mountainous region of gently tilted strata of varying hardness declining gently northward. Like the vast majority of mankind, they were unconsciously dominated by physical environment. No one of them, as an individual, felt the influence greatly, but by inheritance and training they were saturated with the effect of century upon century of life in peculiar geographic surroundings. Jesus, alone, in splendid contrast to their narrowness, overcame material influences. He broke through the barriers of inanimate nature, and proclaimed the whole world one. He showed how psychic forces triumph over physical. Rising above the influence of natural environment, he raised his followers with him. He typified the victory which man, as a being endowed with mind and soul, is slowly and painfully winning over the universe.

The geographic difference between Samaria and Judea is so subtle, and has been so important historically that we shall devote this chapter to its further consideration. In preceding chapters we have become acquainted with the appearance of Judea, and to a less extent of Samaria. Here we shall discuss the geological structure of the two, in further detail, showing its effect upon the

form of the surface, and the effect of the form upon history, — a logical sequence. We shall also see how similar conditions in America have in certain respects led to similar results.

The important portion of Judea, as we have seen, is the small plateau region, only twelve miles wide by forty-five long, and from twenty-five hundred to thirty-three hundred feet above the sea. Geologically its most important characteristics are that it consists of rather hard limestones, and that these lie horizontally. On the east and west the great earth-movements which have divided Palestine into long strips running north and south have broken the strata sharply off by faults, or bent them steeply downward. On the north and south the transverse movements which have gridironed the country have caused the limestones to dip gently away from the plateau. South of Judea, after dipping down some two thousand feet, the strata resume a horizontal position, and form the low plateau of the Negeb. On the north, near Sinjil and Gilgal, in the latitude of Jaffa, they dip down a thousand feet or more, but do not resume the horizontal attitude.

Samaria is not a plateau like Judea. On the contrary, it is a region of subdued mountains where movements of the earth's crust have thrown the rocks into irregular folds with axes running in general northwest and southeast, parallel to the range of Mount Carmel and the fault of

Esdraelon. Certain features run nearly at right angles to this direction, so that the province is much diversified. An exact statement of the dimensions of Samaria is difficult. On the east the length of the province from near Shiloh, in the south, to Jezreel, in the north, is close to forty miles. On the west the length is fifteen miles greater, for the long arm of Carmel, reaching out to the sea, is properly a part of Samaria. The width, from the Arabah to the Plain of Sharon, may be set at twenty miles. Others might reckon the dimensions differently, for Samaria is not so sharply bounded as Judea. On the south the transition from the Judean plateau to the Samaritan mountains is clearly defined, but is not so pronounced as to be an inevitable boundary. Hence Samaritan dominion in the early days of the division between the kingdoms of Israel and Judah extended over the northern portion of the plateau for ten miles to a point south of Bethel. Ten miles! How insignificant a distance in most parts of the world! How important in Palestine! Bethel, the House of God, ranks with Hebron as one of the earliest of Jewish sanctuaries. There Jacob saw the angels ascending and descending from heaven, or, according to another story, talked with God and set up a sacred pillar. There in the troubled days of Phineas soon after the Conquest, the people came up to be judged and to learn the will of

Jehovah at the place where the ark rested. Bethel rightly belongs to Judea, but because of tribal jealousy between Benjamin and Judah, it fell to the Kingdom of Israel. There, on the very southern border of his dominion, Jeroboam set up a golden calf in the hope that a rival sanctuary would prevent the people from going up to Jerusalem. Yet even in his day Bethel was for a time reconquered by the people of Judea, and later it once more became completely identified with the plateau.

On the east no desert comparable to the Wilderness of Judea separates Samaria from the Jordan Valley. Nor does any tremendous escarpment prevent the ingress of foes. Not far from the latitude of Bethel the displacements of the earth's crust on either side of the Wilderness of Judea approach one another and coalesce. The step which forms the Wilderness disappears. The displacement between the plateau and the Ghor changes from a fault to a mere bending of the strata which dip down at an angle of twenty degrees more or less. The descent is still steep, but is no frowning fault scarp faced with inaccessible cliffs. When the Jews entered the country they could climb the heights near Mikmash much more easily than those farther south.

Our own experience illustrates the accessibility of Samaria as compared with Judea. From a commanding hilltop close to the border be-

tween Judea and Samaria, the prosperous Christian village of Tayibeh looks out over olive groves to the depression of the Ghor, just as Beni Na'im looks out over bare hills from a corresponding situation in southern Judea. Our wearisome ride of fourteen difficult miles from Beni Na'im across the desert and down the rock stairway to En-Gedi has been described. From Tayibeh a ride of only five miles brought us to the smooth floor of the Ghor. Vegetation diminishes as one descends, and cultivation without irrigation is impossible below an altitude of about twelve hundred feet above sea level. Nevertheless, the mountains are not wholly barren and the floor of the Ghor is well covered with grass, which in early May had already been dry for weeks. The road by which we descended was rocky, because we went practically straight to our destination at El Aujeh without attempting to choose the best way. Coming back we followed a longer route, and found it easy and almost free from rocks. This route or some other a little farther south was followed by the invading Israelites when they came up to march around Ai and overthrow its walls.

The descent from the plateau to the Ghor in northern Judea and Samaria is so easy that some of the upland villagers take flocks thither to feed in winter. Others cultivate land at the base of the escarpment where water comes to the surface in

springs. Seed-time and harvest come earlier in the Ghor than on the plateau. Hence it is possible for the peasants to raise crops in both places. At El Aujeh we visited a mild peasant from Tayibeh who was getting ready to cut his lowland wheat. As we sat on a rude divan in his booth of dry branches, his eager little wife set before us a wild pigeon, cooked on a stick over a fire of twigs. Then, with affectionate volubility, she sent her two daughters — bright-eyed, unkempt little gypsies — to a field close by to gather some of the finest heads of wheat. Taking a few wisps of dry straw, she made a little pile and laid the wheat upon it. Then she calmly put out her hand to the fire where the pigeon had been cooked, and taking a live coal tossed it from hand to hand as she transferred it to the straw. A brief blaze consumed the straw, together with the hairs and hulls of the wheat, and half cooked the milky kernels. She and her imitative little daughters picked up the hot heads, rubbed them in their palms to separate the inner stalk and whatever chaff might remain, and set the blackened kernels before us, smoking hot, on a wicker plate. The meal was probably much like that of Ruth in the fields of Boaz, when she "sat beside the reapers; and they reached her parched corn, and she did eat and was sufficed." For us the chief significance of the day's ride was that it illustrated the relative increase in the fertility of the Ghor and

in the accessibility of the western highland of Palestine as one proceeds northward. The Ghor must always have been a protection to Samaria, but the protection was far less effective than that which it afforded to Judea.

Samaria is nowhere surrounded by such contrasts as those which make Judea peculiar. The province is lower and less massive than its neighbor; the Ghor, too, is shallower than farther south. Hence the moisture-laden west winds do not rise so high on the seaward slope of Samaria nor descend so sharply and so far on the east as in the corresponding portions of Judea, and the borders of Samaria present no such marked contrast as that between the Shephelah and the Wilderness of Judea. Of course the eastern slope of the province is by no means so well watered as the western, but it is far from being an absolute desert like that of En-Gedi or the hills of salt and gravel farther south.

The western boundary of Samaria cannot be located definitely. It is hard to say where the Plain of Sharon begins and the Samaritan highland ends. As the strata dip northward at the northern limit of Judea, the chalk of the Shephelah overlaps the limestone of the plateau. The Shephelah as a distinct range of hills disappears. All of Samaria except the higher mountains consists of the chalk and other relatively soft rocks which lie above the harder limestone. These form low

hills along the western base of the province, but the hills have no continuity, and there is no such bulwark, or halfway land as that which shields Judea. An invader coming up from the plain finds open valleys which lead him easily into the centre of the province. On the north the frontier of Samaria is even more open than on any other side. The line of the fault of Esdraelon is generally reckoned as the northern boundary. From the northern base of Carmel beside the sea it runs southeastward along the southern edge of the plain of Esdraelon to the foot of the sharply marked escarpment by which Mount Gilboa descends to the Vale of Jezreel. The boundary is easily defined but not easily preserved. The break in the earth's crust which determines its location occurred so long ago that the effect upon the topography has almost disappeared in the central portion. Between Megiddo and Jezreel the plain penetrates far into the highlands, almost to the little Moslem town of Jenin, where a pretty white mosque peeps out from amid palms and bananas. When such a border is crossed by the greatest trade route of the age, no race can long remain secluded.

The accessibility of Samaria has been her undoing. We have seen that even her eastern border may be forced by an invader, and that the northern border affords practically no protection. Yet even this degree of openness would have in-

fluenced her relatively little, if her internal structure had been as inhospitable as that of Judea. This subject is of such importance that I shall discuss it somewhat fully from the geological standpoint. What I have to say may be somewhat difficult for readers who have no training in geology, or in the modern science of physiography. If it is well understood, however, it will do much toward explaining how it happened that the great essentials of the religion of the Jews were preserved in Judea, but were almost entirely lost in Samaria.

When Syria first emerged from beneath the sea, the hard limestone which forms the plateaus and mountains of Palestine was buried under hundreds of feet of chalk and other soft rocks. As the land was slowly uplifted, Judea and Moab, as yet undivided by the dropping down of the Ghor, suffered no important change except simple elevation. The surface, that is, the original sea floor, may have stood as high or higher than the present surface, but the strata which now are exposed in the plateaus stood much lower than to-day. Samaria and Gilead, like their southern counterparts, Judea and Moab, were also still undivided. In the process of elevation their strata did not retain a horizontal position, but were gently folded into arches and hollows running northwest and southeast. The difference between Judea and Samaria or between Moab

and Gilead may readily be seen by an examination of the accompanying diagram. It represents

FIGURE 2.

**Highly generalized and idealized Geological Section of Palestine from North to South.**

an idealized geological cross section running north and south through the centre of Judea and Samaria at right angles to the section across Judea shown in Figure 8 at the end of the book. After the completion of the processes of uplifting and folding, the land stood at a nearly stationary level for hundreds of thousands of years. How the streams ran we do not know, but certainly not at all as now. Some probably flowed westward or northwestward directly across the region which has since sunk to become the Jordan-Arabah depression. Whatever may have been their courses, they accomplished a great amount of erosion, wearing away the rock for millennium after millennium. They began by carving narrow gorges in the plain of the uplifted sea floor. Then the gorges were broadened, and their sides rendered less steep. At length each valley became a broad plain, the intervening mountains

were reduced to hills, and the country began to grow old. Finally, after long ages, erosion had proceeded so far that hundreds or thousands of feet of rock had been removed. The hills were practically consumed, and the land was largely reduced to smooth plains wherein wound sluggish rivers. Gentle swellings rose between the valleys, but nowhere was there anything steep, or anything which could be called a mountain. The country was reduced to what the physiographers call a peneplain, — almost a plain.

We know that Palestine was reduced to a peneplain, because remnants of the plain still survive. In the Shephelah around Beit Jibrin the tops of the hills present a flat, even skyline which they could not possibly attain without being subjected to the process of peneplanation. The same is apparently true of Mount Carmel. All the mountains of Samaria and Gilead rise to such a height that their tops appear to lie in a single plane. The plane is not horizontal, but rises from west to east and north to south. In Gilead, northeast of Es Salt, on the way to Jerash, some of the strata at the time of the original folding were bent into hollows, like vast shallow bath-tubs, as it were, with both ends rounded, and with gently sloping sides. On all sides of the hollows the strata formed arches and bent down again, as may be seen at A in the diagram on page 146. Erosion has planed off the tops of the arches, but

the hollows remain. Looking east from the Wilderness of Judea, one can clearly see another type of planation represented with almost diagrammatic clearness in the escarpment of Moab east of the Dead Sea. The strata of limestone and underlying sandstone dip gently toward the south. They are neatly bevelled by the smooth surface of the plateau, which cuts across the different layers without the slightest attention to whether they are hard or soft. To the physiographer it is clear that all these phenomena would be impossible unless the country had been reduced to a peneplane. Otherwise hard and soft strata could never have been worn to such a uniform level. The hard rocks would project as mountains, their tops would be uneven, and in many other ways the topography would differ from its present state. At the end of the peneplanation all Palestine was probably reduced to a plain in which hard rocks and soft had alike been worn so low that they could not be worn much lower. Then the earth's crust began to stir once more. Slowly the whole country was upheaved, as described in a previous chapter. The long slice from the Orontes to the Dead Sea separated itself from the rest of the land, remaining stationary or actually falling far below its previous level. During the progress of these changes, immeasurably slow by human standards, rapid geologically, the last touches were given to the fault of Esdraelon. The

original movement along the fault-line may have taken place ages ago, but now occurred the final adjustment by which the country north of Carmel was slightly depressed to form the irregular coast of Phœnicia, while that to the south was raised to form the harborless coastal plain of the Philistines.

When Judea and Samaria, on the west, and Moab and Gilead, on the east, were finally elevated to their present positions on either side of the newly formed Ghor, all alike were smooth plateaus, almost without valleys. Their appearance was even more diagrammatic than that of the relief map opposite page 22. Such would still be the case, were it not for erosion. When the smooth old peneplain was warped, broken, and uplifted, new streams necessarily developed in conformity with the new slope of the surface. These consequent streams, as they are technically called, began to cut gorges in the relatively steep slopes bordering the plateaus. From the slopes they cut back headward into the plateaus themselves. New tributaries were gradually developed, at first as mere gullies. These also cut headward and ramified, so that ultimately a network of valleys drained all parts of the country. In Samaria and Gilead the streams encountered both hard strata and soft. The hard layers resisted erosion. The soft were easily worn away. Hence the streams which happened to be located

in soft strata rapidly prolonged their courses headward. Then when they had reached a certain depth, where the load of pebbles which they carried was so great as to prevent rapid erosion of their beds, the graded streams, as they are termed in this condition, began to cut laterally. Thus the regions of soft strata were ultimately converted into broad fertile plains or basins, while the hard rocks were left as mountains. The process is exactly that which has already been described in connection with the Shephelah. It is the same which has given rise to the so-called Appalachian structure in America. The short ridges of Samaria and Gilead are essentially the same as the long Blue Ridge and others which extend southwestward from Pennsylvania through the Virginias to Tennessee. The oval basins of Gilead, with their surrounding girdles of mountains, are small examples of the same type as the so-called canoe valleys of the coal regions of Pennsylvania.

In horizontal strata there is nothing to guide the headward growth of the valleys. To cut in one direction is as easy as in another. Nothing gives one stream an advantage over another, or causes tributaries to follow any particular course. The valleys grow as chance may dictate, forming a highly intricate pattern of irregular, interlacing branches. Where the rocks are hard, as in Judea, the valleys cannot be widened rapidly. Hence

they are narrow and steep-sided. Great thicknesses of rock rarely preserve precisely the same hardness throughout their mass. Every few feet slightly softer layers are apt to occur. Along these, erosion proceeds with relative rapidity. Their substance is eaten away, and the overlying harder layers are undermined, and break off in little cliffs. Hence the sides of the Judean valleys are not only steep compared with those of Samaria, but are composed of a vast number of little terraces, where the soft layers form benches of varying width, and the hard layers form cliffs from one to twenty feet high. Naturally such valleys are not easy to traverse nor to cultivate. When it is remembered that the whole Judean plateau is cut by such valleys, and that they run irregularly in all directions, it is manifest that the province is not an easy region to conquer. The only real road in Judea is the one along the very middle of the plateau, from Hebron, through Bethlehem and Jerusalem to Shechem.

We fell victims one day to the character of the roads within sight of Jerusalem. With the stupidity which one must ever curse — or refrain from cursing — in the Orient, our head caravan-man, Abdullah, left a rifle standing against the wall in a street of Jerusalem. He discovered the loss after half an hour, and stopped to consider the matter. When the "boy," who in the East does all that no one else is willing to do, had been

sent back for the gun, Abdullah followed us to the first village, bringing the two baggage horses with him. There, in rocky Anathoth, where Jeremiah grew up, he inquired which way we had gone. "Down that road to the east. To Ain Farah," said a villager, and thither the sapient servant went. He well knew that we were to spend the night at Tayibeh, which lies to the north; but he also knew the nature of Judean roads. He did not know that Judea was a dissected plateau, but he knew that one who wants to go north starts either east or west, or perchance southward. The trail which we had taken soon branched off to the north, and descended a precipitous hill over rough little terraces of rock, and climbed out on the other side, only to go down again across another valley. Abdullah kept on eastward with the slope of the land, and finally came to Ain Farah. There he found nothing but a spring at the bottom of a deep valley whose rocky sides had been painstakingly terraced for wheat which was still green, and barley whose scanty crop was ripe. There he sat down to wait for us. How he expected us to arrive when we had already passed on ahead is a problem too subtle for solution by an occidental. Possibly his knowledge of Judean roads had convinced him that there is no good road to any place, and no one road. Therefore we might have gone by another road worse than his, and would

arrive later. Perhaps his thought pursued another line. I had recently reproved him for not waiting long enough at a place where I had agreed to meet him. Now he may have argued that it was his duty to wait indefinitely at a place which I had never mentioned. At any rate he took off the animals' loads and sat down to wait. By noon he wanted to move on, but unaided could not put the loads on the horses again. He waited till night, but no one came, and he dared not leave the animals for fear they would be stolen. He plundered the barley-fields for himself and the horses, and waited till a villager happened to come along toward noon the next day. Then he retraced his steps to Anathoth to make inquiries once more. Finally, having learned nothing new, he resorted to the desperate expedient of coming to Tayibeh, the place originally agreed upon. We were glad to see him, not only because we had been anxious, but because of certain small but persistent elements of discomfort involved in sleeping in native beds, as we had been obliged to do. I surmise that he was glad to be lost in order to weather the storm which he expected would rise on account of the gun. His method may have been what he called "politics." Nevertheless he really lost the road, and we ourselves lost it, although we had a guide. It is almost impossible for a stranger to find his way among the intricate Judean valleys.

We have compared the disjointed mountains of Samaria with the long ridges of the Appalachians. It is equally appropriate to compare Judea with the Allegheny plateau in Kentucky and Tennessee. The Poor or Mountain Whites of that region are a familiar example of the effect of seclusion upon men of the world's best stock. On the way from Cincinnati southward to Chattanooga one traverses the rich rolling lands of the Blue Grass country of Kentucky, and then enters the Allegheny plateau, where the Poor Whites live. The railroad winds and tunnels through wooded hills. It crosses great trestles high over rivers which run at the bottom of deep valleys cut in horizontal limestone. The sides of the valleys are bordered by terraced cliffs so steep as to be inaccessible in most places. The appearance of the country is enough to show that the inhabitants must be ignorant, narrow, exclusive. One is not surprised to hear a track inspector on the railroad say, "In here we can't use niggers on railroad work. The Whites won't have it. If we bring 'em, they'll just shoot 'em. They're wild, ignorant folks, these Mountain Whites. They'd just as soon shoot a man as eat. You can't teach 'em better. No, you're wrong. It ain't the kind of country that they live in. They're just nat-'rally backward and ignorant." In spite of the railroad-man, there can be little doubt that the Mountain Whites have stagnated because they

happened to settle in a plateau of horizontal limestone, deeply dissected by valleys. The influence of the plateau has been good as well as evil. It has fostered hardihood and bravery. It prevented slave-holding and its attendant evils. The Whites may have stagnated, but they are not all like the boy whose mother said that he was "right smart backward about learning fast." Lincoln is not the only man of exceptional ability who has sprung from among them. It would be a mistake to carry the comparison between the Allegheny and Judean regions too far, for there are most important points of difference. The two plateaus are of precisely the same structure, however, and both are so inaccessible and difficult to traverse that the inhabitants have been cut off from the rest of the world and have developed along peculiar lines.

Before the great transformation came to Palestine, the people of Judea were like children living in a retired house among the woods, near a great road, but far back out of sight and sound of it. Those of Samaria were like children whose home stands close upon the busy turnpike, whose friends are the teamsters and hucksters, and whose playground is the dust of the street or the vacant lot across the way. The limestone of the Judean plateau rises in the heights of Gerizim and Ebal on either side of Shechem, it is continued in the mountains northeast of the city of Samaria, and

it ends where Mount Gilboa drops sharply down to the smooth Vale of Jezreel. Northwest of the high land thus defined in southern and eastern Samaria, the limestone dips downward, and is covered for a space of perhaps twenty miles by the chalk and other soft formations which constitute the Shephelah farther south. Here the unresistant rocks have been worn into low, rounded hills, and open vales, through which the great highways of the past found easy passage. North of the low region the limestone rises once more into the long ridge of Carmel, faintly arched along the summit, and dropping precipitously to the sea.

I cannot refrain from quoting the description of Carmel which Professor George Adam Smith gives in that best of all books on Palestine, "The Historical Geography of the Holy Land": —

"Sweeping seawards, Carmel is the first of Israel's hills to meet the rains, and they give him of their best. He is clothed in verdure. To-day it is mostly wild — fresh open jungle, coppices of oak and carob, with here and there a grove of great trees. But in ancient times most of the hill was cultivated. The name means The Garden, and in the rock, beneath the wild bush that now covers so much of it, grooved floors and troughs have been traced, sufficiently numerous to be proof of large harvests of grape and olive. The *excellency of Carmel* was now the figure of

human beauty, and now the mirror of the lavish goodness of God; that Carmel should languish — Carmel in the very gateway of the rains — is the prophets' most desperate figure of desolation.

"But it is as a sanctuary that the long hill is best remembered in history. In its separation from other hills, its position on the sea, its visibleness from all quarters of the country; in its uselessness for war or traffic; in its profusion of flowers, its high platforms and groves, with their glorious prospects of land and sea, Carmel must have been a place of retreat and of worship from the earliest times. It was claimed for Baal; but, even before Elijah's day, an altar had stood upon it for Jehovah. About this altar — as on a spot whose sanctity they equally felt — the rival faiths met in that contest, in which for most of us all the history of Carmel consists. The story in the Book of Kings is too vivid to be told again; but it is not without interest to know that the awful debate, whether Jehovah or Baal was supreme lord of the elements, was fought out for a full day in face of one of the most sublime prospects of earth and sea and heaven. Before him who stands on Carmel, nature rises in a series of great stages from sea to Alp: the Mediterranean, the long coast to north and south, with its hot sands and palms; Esdraelon covered with wheat, Tabor and the lower hills of Galilee with their

oaks, — then, over the barer peaks of Upper Galilee and the haze that is about them, the clear snow of Hermon, hanging like an only cloud in the sky. It was in the face of that miniature universe that the Deity who was Character was vindicated as Lord against the deity who was not. It was over all that realm that the rain swept up at the call of the same God who exposed the injustice of the tyrant and avenged the wrongs of Naboth" (pp. 339–341).

Strange that the last great stand of true religion in northern Israel should be in this outpost where the hard strata of Judea rise for the last time before being cut off by the great break of Esdraelon. Here in this small refuge among the hills a sanctuary of Jehovah had probably been preserved when all the surrounding region fell into Baal worship; but Carmel could not stem the tide of advancing heathenism. The fierce denunciations of Elijah and the loving tenderness with which Elisha met the Shunammite woman when she came to Carmel to bring him word of the death of her son, were alike powerless to counteract the influence of the great highways which separated Carmel from the main body of Samaria.

These highways are the most distinctive feature of Samaria. Out from the marts of rich Egypt poured the traffic. Caravans of pattering donkeys with sacks of grain thrown across their backs were

followed by strings of slow-pacing camels, which stopped at times, while the bearded caravan-men twitched the ropes of the cruel headstalls and forced the huge beasts, in spite of their snarling roars, to kneel and have their loads adjusted. Cavalcades of gorgeous horsemen armed with spear and bow surrounded sleek mules bearing some great man and his veiled wives with a host of servants. Couriers speeding post-haste on the king's business passed chariots wherein proud officers of state journeyed to and from their posts. And with all these the humble throng of ragged poor men plodded on, shuffling in worn sandals or stirring the dust with unshod feet. Wrapped up in each long gay girdle was store of gritty flat sheets of bread. The rest of the travellers' goods were tied in stained pieces of cloth, and swung over their shoulders on sticks. A small part of the traffic from Egypt took the road to Petra, which runs well to the south of Palestine, and thence through northern Arabia to Chaldea and Elam. By far the greater portion came up the coast to Gaza and Joppa. Then, striking slightly inland, the travellers and their patient beasts skirted the inner edge of the Plain of Sharon to the latitude of northern Samaria. There three roads cross the low chalk hills south of Carmel. The easiest and most frequented leads up the broad valley of Dothan to Jenin, the ancient En-gannim. Thence a branch

runs northward to join the second road at Nazareth, but the main track passes on a little north of east to Beisan, formerly Beth-shean, in the Jordan Valley. In the Decapolis or Hauran, the road divides. One branch runs northward to Damascus, the other eastward to Bosra in Bashan, and so straight across the desert to Babylonia.

The second road crosses Samaria eight miles north of the first. It passes through Megiddo, where the Egyptians fought a great battle with the Syrians fifteen long centuries before the days of Christ. Nazareth is the next station. Then the route traverses Galilee, passes north of the lake of Tiberias, and reaches Damascus. There all the trade of northern Syria, the land of the Hittites, northern Mesopotamia, and Assyria converges to pour out along one road or the other through Samaria to Egypt. The third of the roads which put Samaria in touch with the great world continues northward from the Plain of Sharon, parallel to the Mediterranean coast, but bending slightly to the east to avoid the southern end of the heights of Carmel. An alternative route hugs the coast, skirting the base of the cliffs among the rocks at the northern end of Carmel, and avoiding Samaria. But it is harder than the route southeast of Carmel, and, except for those whose destination is Haifa, no shorter. Hence the Samaritan road carried most of the traffic between Egypt and the Philistine

plain on the south, and Akka, Tyre, Sidon, and the rich Phœnician coast on the north.

All three of the great trade routes poured forth their influence upon Samaria. Coming up from the south as one, they passed but twelve miles west of the city of Samaria, — twelve easy miles down an open valley. The southern road, the first of the three, bent eastward in an arc, so that on the north it was only ten miles distant from the city. Not only trade, but armies followed these routes. The Philistines came up this way — roundabout as it may seem — when they were at war with Saul and Jonathan. They knew that it would be easier to strike at Samaria than at Judea, or, perchance, they felt the value of controlling the great avenues of commerce. At any rate Jezreel, on the southern border of the plain of Esdraelon, was where they met and defeated the Israelites. Time after time Egyptian, Assyrian, Syrian, or Hittite armies passed this way. In later days Alexander, the Romans, the Crusaders, Napoleon, and the modern Turks could find no better route. In the ebb and flow of armies and of traffic wave after wave of foreign influence inevitably swept into Samaria. The Phœnician came with his idols and his love of gold, the Syrian with his vain pomp, and the Hittite and Assyrian spreading fear and destruction. Samaria, open as she was, and crossed by the only available lines for the eager traffic of the

East, could not hold her own. The waves of foreign influence destroyed her individuality. The same waves broke against the bulwarks of Judea, and were checked. Often they showered the land with spray, but only in the rarest cases did the waters completely engulf it. And even then, they quickly ebbed, and the rugged plateau returned to the isolation which was its strength.

## CHAPTER VIII

### GALILEE OF THE GENTILES

WRONG as they were in the broader sense, the scornful Pharisees were historically correct in their taunt of Nicodemus for his defence of Jesus. "Art thou also of Galilee? Search and see that out of Galilee ariseth no prophet." In the days of Christ the Jews of Galilee were mere provincials in the eyes of Jerusalem, — uninstructed in the Law, and speaking a vulgar dialect corrupted with foreign phrases. Behind them lay nothing in the way of noble deeds. In all the history of the Children of Israel, from the days of Abraham to the close of the Old Testament, no great event is recorded as having taken place in Galilee. Barak, to be sure, gathered his army at Mount Tabor, but the ensuing battle with Sisera was fought on the banks of the Brook Kishon in the plain of Esdraelon. Other battles and great events took place in Esdraelon, but all were on the southern border, and were identified with Samaria rather than with the northern province. If Jesus had not lived in Galilee and preached beside its lake, the name would mean no more to the world than, for example, does that of Elam.

Galilee is mentioned but six times in the Old Testament, Elam thirteen.

According to the traditions of the Conquest, Joshua divided Galilee among the tribes of Issachar, Zebulon, Asher, and Naphtali. As a matter of fact the province probably never became thoroughly Hebraized at any time. In the most prosperous days of the Israelites it was so far from being an integral part of Israel that Solomon, willingly, or because he could make no better terms, "gave Hiram twenty cities in the land of Galilee." The prophet Isaiah does not appear to regard it as forming any part of the land of the Jews, for he calls it "Galilee of the Gentiles." The title was justified. In the days of the Maccabees we are expressly told that the region contained only a few Jews living in the midst of great numbers of heathen. Strabo does not even mention the Jews among its inhabitants. Possibly he was not aware of the influx of that race during the last century or two before Christ. Or perhaps he did not deem it sufficiently important to be worthy of mention; for the Jews came only into the south of Galilee and the part around the lake.

In later days, however, after the fall of Jerusalem, Galilee was the final refuge of Judaism. Thither the Sanhedrin moved, and there large portions of the Talmud were written. When the obstinacy and tenacity of purpose which the Judean plateau had fostered compelled the Ro-

mans finally to destroy Jerusalem and scatter the Jews, Galilee at last found a place in their history, but it had no part in their development. Yet to-day many intelligent people suppose that Galilee ranks with Judea as a factor in the growth of the character and religion of the Jewish people. The connection of Jesus with Galilee has completely overshadowed the insignificance of the province from any other standpoint.

The physical features of Galilee explain why its history, apart from the life of Christ, was so much less important than that of Judea or even Samaria. This northern province of western Palestine falls naturally into two divisions, Upper and Lower. Upper Galilee is a little plateau about twenty-five miles long from north to south, and twenty wide. It is neither more nor less than a relatively low and somewhat detached continuation of Lebanon. In form it is a plateau, but not of quite the same type as that of Judea. Originally its limestone strata were folded in the fashion of those of Samaria, but probably not so much. Later, erosion reduced it to a condition of comparatively low relief, although possibly not to a peneplain. Then, not far from the time when the country assumed its present form and elevation, large sheets of lava were poured out from various volcanoes. Where lava caps the country erosion has not been able to proceed rapidly. Therefore Upper Galilee stands high,

while Lower Galilee is low. The boundary between the two is not well marked on most maps, but it is distinct in nature. North of a line running approximately from Akka to the northern end of the Sea of Galilee the country lies at an elevation of over 2000 feet. The loftiest mountain, Jebel Jermak, eight or ten miles northwest of the Sea of Galilee, rises to a height of 3900 feet. South of the line much of the land lies less than 1000 feet above the sea; and Tabor, the highest summit, reaches an altitude of only 1850 feet. On the east Upper Galilee is sharply bounded by the depression of the Jordan Valley. On the north it is separated from Lebanon by a broad sag in the mountains as a whole, and by the narrow gorge which the Litany River has cut where it turns westward across the general trend of the chief highlands and valleys. Galilee does not in any sense depend upon Lebanon for its springs or its rain, as is sometimes said, for the two are distinctly separated.

The plateau of Upper Galilee is not so dry and rugged as Judea. The height of the mountains causes a relatively heavy rainfall. The basaltic rocks and the deep, dark volcanic soil to which they give rise retain the moisture much better than the half-naked, porous limestones of Judea. Hence springs and streams flow with a steadiness unknown in southern Palestine. Vegetation is abundant. The mountains are dark with open

HARVESTERS BESIDE A STONY GALILEAN ROAD

THE BEST HOUSES OF MEJDEL IN THE PLAIN OF GENNESARET

forest of small oaks, which diminish to scrub on the eastern side of the plateau. The valleys are full of bushes and thickets, and the gentler slopes are covered with fertile grainfields. To the inhabitant of Judea or of the dry regions to the east, it seems a fertile land; but when "Hiram came out from Tyre to see the cities which Solomon had given him, they pleased him not." Doubtless the villages — for such they must have been rather than cities — were within twenty miles of Tyre, and were inhabited by Phœnicians. They were in the mountains, however, and it was impossible that they should be so rich and productive as the little plain around Hiram's own city.

In describing the borders of Upper Galilee I have purposely omitted all mention of the western boundary. The reason is that there was no such boundary; or, at least, if Galilee be reckoned as a part of Palestine, it is practically impossible to say where the province ended on the west. The Galilean hills run to the coast in many places and form headlands such as the bold "Ladder of Tyre." Elsewhere they are separated from the sea by small plains of which that of Akka is much the largest. If Upper Galilee be reckoned as a part of Phœnicia, on the other hand, the Mediterranean is the western border. As a matter of fact, both the physical form of the country and its history proclaim it a part of

Phœnicia. The main valleys open toward the west, the sea is nowhere more than twenty-five miles distant, the water is in sight from a large proportion of the villages, and there is nothing like the Philistine plain to separate the plateau from the coast. From three fourths of the province the easiest roads are those which lead seaward to the great towns of Tyre and Akka. Hence the inhabitants looked toward the west, and their affinity was with the Phœnicians rather than the Jews.

Lower Galilee is as distinct from Upper Galilee as Samaria is from Judea. The difference between the two pairs of adjacent provinces is of much the same type. We might almost consider that Palestine west of the Jordan consists of four provinces, — the plateaus of Judea and Upper Galilee at either end, and the districts of Samaria and Lower Galilee, with their mixture of plains and rounded mountains, lying at lesser altitude, in the middle. From the point where the Jordan enters the Lake of Gennesaret, the eastern border of Lower Galilee extends southward twenty-five miles almost to Beth-shean. Thence the boundary runs a little north of west along the frontiers of Samaria past Jezreel to the southern border of the plain of Akka at the eastern base of Carmel. Turning northward it passes Harosheth of the Gentiles, where Sisera lived, and for twenty miles follows the inner edge of the plain of Akka, ten miles

from the sea. Finally, it trends due east for twenty-five miles to the starting-point. In this small district Jesus' ministry centred. The remotest parts could be reached from Nazareth in an easy day's walk of less than twenty-five miles.

In geological structure and scenery Lower Galilee is not widely different from Samaria. On the whole it lies at a less elevation than its sister province. Its ranges of hills are disposed more nearly east and west, or with a slight inclination to the northeast. It includes smooth, swampy plains such as Esdraelon to the south of Nazareth and Asochis or Buttauf to the north. In both cases a downward movement of a part of the earth's crust has produced depressions upon whose flat floor water often stands in pools or marshes for months in the winter and spring, preventing agriculture. The important parts of Lower Galilee are the gentle hills and the broad valleys among them. Here the land is fertile, and agriculture is a profitable occupation. Rocky slopes are numerous, but are not a tithe as abundant as in Judea; and vegetation is much more vigorous than there. The grassy hills are often clothed with oak scrub or with trees of small size scattered in open order. The grainfields have a prosperous appearance. Yet the country is far from rich. Compared with Lebanon it is unfruitful. Compared with the better parts of Italy, it seems most barren.

This little province of Galilee lies in the centre of highly varied regions. The recorded life of Jesus was limited to a district scarcely larger than that which cities like Chicago reckon as suburban. Northward he went to Tyre on the coast and Cæsarea Philippi at the lower springs of the Jordan. The distance of the one is only forty miles from Nazareth, and of the other less than fifty. If he went as far as Sidon, which is suggested, although not definitely stated in the New Testament, the distance from his home was only sixty-five miles. East of the Sea of Galilee and the Jordan, forty miles would cover all of the Decapolis and Perea which there is any likelihood that he ever visited. Jerusalem itself, by way of Samaria, is separated by but sixty-five miles from Nazareth. Aside from his journey to Egypt when his parents fled with him as an infant, we have no indication that he ever visited any place more remote from his home than Bethlehem, seventy miles away. In his whole life after infancy Jesus never departed from home farther than a New Yorker would go who confined his travels to Trenton on the southwest and New Haven on the northeast, or a Londoner whose journeys did not extend beyond Southampton on the one side and Ipswich on the other. Yet in that space how vastly greater the variety than that which the Londoner or New Yorker would find. The trafficking Phœnicians of the coasts,

the provincial Jews of Galilee, the Greek cities of the Decapolis, the backward Gileadites, the despised Samaritans, the exclusive Jews of Judea, and over all the Roman and his legions, recruited from the world. A man who travelled where Jesus did became cosmopolitan in spite of himself.

Even if Jesus had never left his home in Nazareth, he could not have escaped the influence of the surrounding nations. Lower Galilee, only less than Samaria, is crossed by main lines of traffic. Of the three great routes from Egypt to the north which traversed Samaria, the middle one passed up through Galilee by way of Nazareth to the northern end of the Sea of Tiberias. It was not the easiest route to Damascus, but the shortest, and for travellers on horseback it was in many respects the best. At right angles to this route ran another, along which passed the traffic from the busy Phœnician coast to the Decapolis, and the prosperous regions southward beyond Jordan as far as Petra. The fact that Nazareth is now secluded and that Galilee is far from the bustle and hurry of the great world is apt to mislead us. We must remember that up to the time of Christ and for a few centuries thereafter, Damascus, as a focus of trade, held a position corresponding almost to that of Chicago or even London to-day. Phœnicia corresponded to the manufacturing and commercial districts of the North Atlantic coast

in America, or to the part of England northwest of a line drawn from Bristol to Hull. The farming country of the Decapolis and southward was as populous and prosperous as Iowa or as the southeastern lowland of England. Lower Galilee and northern Samaria lay in the path of trade exactly as the Mohawk Valley now does in central New York, or as the Cheshire Gap does between London and Liverpool. Albany, Troy, Syracuse, Rochester, Buffalo, and a score of smaller cities have grown and prospered because of the geographic features which have made the line followed by the New York Central Railroad the greatest of American trade routes; and in like manner Rugby has become one of England's chief junction points, and Birmingham was an important trading mart centuries before the smoke of her coal hid her from the sun, simply because both cities lie on the English line of easiest and most important traffic. Syria is planned upon a scale smaller than that of America, or even of England, but the intensity of movement and the effect upon the regions through which the trade routes passed was probably little less than in these modern days. Indeed the influence of traffic was greater in the past than now, so far as intermediate stations were concerned. To-day thousands of freight cars remain locked from one great city to another. They pass through the intervening regions without touching the life of the little

villages along the way. Before the days of steam, conditions were wholly different. Caravans of pack animals rarely travel more than twenty-five miles a day, and they do not average over fifteen including halts. Every village along the way is a stopping place. Often the travelling merchants turn aside a few miles to avoid the crowd at certain points, or in the hope of finding cheaper food or more abundant grazing for the animals. Every villager with aught to sell, if he cannot find ready sale in his own home market, bethinks him of the caravan stations. He loads his donkeys with panniers of grapes, rope crates of melons, coarse bags of barley, or sheaves of half-dried hay, and wends his way to the great highroad. A day's journey thither and a day's journey back is no great matter. No part of Lower Galilee or of Samaria north of Shechem lies farther from a great caravan road than a man might drive the slowest donkey in a day. The oriental, like his occidental brother, must gossip and get the news when he sits idle of an evening, or waits for buyers to come. Thus in the days of active caravan traffic the low portions of Palestine between the plateaus at either end were permeated through and through by outside influences. They could not remain secluded. Therefore the prophets wailed over "the wickedness of Samaria"; and the northern province was "Galilee of the Gentiles."

Although Galilee was for the most part a land

of the Gentiles, the portion comprised within the Jordan Valley was a pronounced Jewish centre in the days of Christ's great ministry. Here the flow of the river was interrupted by two small lakes, the only important bodies of fresh water in all Syria. Let us see how each of them was formed. Long before the days of man, but late in geological time, lava poured down from the volcano of Jebel Jermak in Upper Galilee, or from other less distinct sources, and partially filled the valley of the Ghor. Thus a dam was produced behind which the Jordan was checked to form the Waters of Merom, also known as the lake of Huleh. The lake at first was far larger than the present little sheet of water, which is scarcely four miles long. Little by little, however, the Jordan has deposited its perennial load of silt, and the northern part of the lake has been converted into a swampy haunt of wild fowl. In time the lake will be drained by the cutting of a channel at the outlet, but as yet this process has only begun. Nevertheless where the water flows over the southern side of the lava dam, it has cut a deep gorge. In the space of scarcely six miles the river falls from the level of the Mediterranean at the lake of Huleh to nearly seven hundred feet below sea-level at the Sea of Galilee. After thousands of years of freedom the wasted energy of the falling water is at last being harnessed by a French company for the development of electricity.

Other lava flows, smaller than those which formed Huleh, poured into the Ghor from southern Galilee on the one side, and down the valley of the Yarmuk on the other. In somewhat later times, for reasons which we shall soon consider, the Dead Sea stood far higher than now, and expanded so far to the north that the Yarmuk flowed into it instead of into the Jordan. Hence the abundant silt borne by the Yarmuk was deposited in the form of a delta at the point where that river now enters the Jordan. The combined effect of the lava and of the silt laid down upon it was to produce a second dam, behind which the Sea of Galilee gathered as a harp-shaped sheet, thirteen miles long by seven wide. Although the lake is decreasing slightly in size, partly by the deposition of a delta where the Jordan enters on the north, and partly by the slow cutting down of the channel where the river emerges, the process is so slow that the lake is of essentially the same size and shape as in the days of Christ.

A lake is always an addition to the landscape. If the water laves the foot of mountains, the view must needs be beautiful. If the slopes are green with the fresh grass of spring, and the waters are deep purple in the shallows along the shore, pale purple or lilac where the wind does not get a full sweep, and deep green where the waves are high, no one can fail to be filled with the joy of its beauty. Let the color change to darker green

when the wind blows more strongly, while the edges become peacock blue. Climb higher until the whole expanse lies as a sheet of blue. See the gorge of the upper Jordan off there to the north like a broad V, and snowy Hermon crowning the view. Look across to the east at the Jaulan, descending gently from the north and studded with the symmetrical cones of small volcanoes which break but do not destroy the smooth sweep of the upland. Include the mountains of Gilead to the south, like a lens of delicate blue, thickened in the middle. Turn north again to the green plain of Gennesaret sloping to the water's edge. People the shores with prosperous towns embowered in gardens, and filled with the busy crowd which thronged to hear Christ preach. Yonder two sails appear as specks of white. Even as we look they multiply to scores of fishing-boats, manned by men like Peter and John, and filled with the eager multitude who followed Christ to share the loaves and fishes. No wonder such a lake has aroused enthusiasm for well-nigh twice a thousand years.

It is almost impossible to separate the Sea of Galilee from the loving ministry of Christ. Here he tended the sick and suffering, preached the Sermon on the Mount, called the disciples to become fishers of men, and spent the happiest and outwardly most successful portion of his manhood. Yet it is essential to distinguish between the lake as it really is and the lake as we love to

imagine it. Unquestionably this Sea of Tiberias is beautiful in many respects. In spring, when the hills are green for a month or two, it is at its best. The rest of the year its appearance is not such as to arouse enthusiasm. We visited the lake in late June. On the twenty-first of the month we camped in the plain of Gennesaret whither we had come that day from Nazareth by way of Mount Tabor. In order to show the impression made by the lake when we thus reached it after months of travel, I quote the following description directly from my notebook without recasting it into literary form:—

"The view of the lake shores is very barren. The plain of Gennesaret itself, on the edge of which we are camped, is well tilled by Jewish colonists, who employ Arabs. It is covered with fields of millet, egg-plant, tomatoes, wheat, and so forth, and seems rich. The shores along Gennesaret are prettily fringed with oleanders still in blossom, and with another plant bearing blue flowers in spikes like spirea, and scented like mint. The scenery around the rest of the lake is very barren — a clump of trees and a windmill at the German convent, a white house at Tell Hum, a few patches of green halfway up on the eastern side — that is all. The rest is dull brown, steep to the east, rising gently to the north. It is not so bad as the Dead Sea, but it is very barren."

Galilee has suffered the same change as other

parts of the country. To-day Tiberias is the only town on its shores. The little village of Semakh at the south end is important for tourists who come by rail, but in no other respect. Squalid little Mejdel is the only other real village on the lake shore. It stands on the southern edge of the plain of Gennesaret, sole representative not only of Magdala, whose name it still preserves, but of Capernaum, Bethsaida, Chorazin, and no one knows how many other places. Once the shores of the Sea of Galilee were lined with almost continuous cities, villages, and gardens. According to ancient accounts, nine cities stood beside the lake, and each had at least fifteen thousand inhabitants. Some probably had more, and there must have been a large number of smaller villages. The population may have been fully 150,000. Even if the figures are exaggerated and the true population was only 100,000 or 50,000, the contrast between the past and the present is startling. To-day Tiberias is supposed to have about 5000 inhabitants. The other villages and the nomads who frequent the north end do not amount to a thousand souls all told. The cause of the present dearth of population is not far to seek. It is lack of water, either in the form of rain or in streams from the highlands. The conditions closely repeat those of En-Gedi. The Sea of Galilee lies in the lee of the hills, just as the Wilderness of Judea lies in the lee of the plateau. Therefore it receives

decidedly less rain than the regions west of it. The contrast is not so great as in the Judean district, but it is of the same sort. The country around the lake is not a desert, but it is so dry that agriculture is either impossible or highly precarious without water for irrigation. The amount of water available in streams is small. It comes chiefly from the volcanic region in the south of Upper Galilee, and waters a part of the plain of Gennesaret. Therefore that plain is the only fertile region around the lake. In former times a population such as dwelt there could scarcely have supported itself, unless the rainfall had been sufficient to make agriculture possible on all the borders of the lake. The Galilee of Christ's day must have been a paradise compared with that of to-day.

## CHAPTER IX

### THE GHOR AND THE DEAD SEA

The great naturalist Humboldt held that no other geological phenomenon in all the world is so profoundly important as the Ghor. Many other scientists have agreed with him. Considered simply as a geological matter, the Ghor is a marvellous example of a long, narrow slice of the earth's crust dropped thousands of feet below the plateaus on either side. Contrary to the old belief, a river whose valley has not been made by the action of water, but by the movement of the earth's crust, is one of the rarest of phenomena. So far as is known the Jordan is the only considerable river which flows in a valley practically ready-made from head to mouth.

Considered from the geographic point of view, the Ghor is equally remarkable. At its northern end, if we apply the name to the whole depression from the latitude of Damascus to the Gulf of Akaba, the fertile plain of its floor is covered with an abundant growth of grass and grain, with bushy thickets here and there, and with groves of oak and terebinth in well-watered areas where cultivation is not profitable. Then come the swamps and lake of Huleh, with gorges cut in

lava both above and below. The Sea of Galilee follows, with all its significance in the life of Jesus. As it leaves the lake, the Jordan flows clear and sweet among lily pads, or white and foamy over rapids. It has no valley of any appreciable depth, and runs scarcely below the level of the grassy plain. Two or three villages lie near it, their mud houses nestling among palms, and surrounded by orchards heavy with figs and apricots. Soon, however, the river cuts for itself a narrow inner valley with walls of whitish clay. Little by little the water gathers silt, and the stream in its lower course is thick with mud. It flows between brakes of tamarisk, but above the banks on either side the floor of the Ghor is barren, a saline desert waste. And so the river loses itself in the Dead Sea.

Formerly this intensely saline sea in the bottom of the Ghor was supposed to be a concentrated remnant of the ocean. Now we know that this is far from the case. The Dead Sea has become salty because the water of the Jordan, the Yarmuk, the Jabbok, the Arnon, and every other tributary contains an inappreciable quantity of salt, just as does almost every stream in the world. For hundreds of thousands of years the streams have poured into the lowest hollow of the Ghor. The hollow is so deep and the climate so dry that, so far as can be ascertained, the Dead Sea has never risen to the point of over-

flowing. Year by year the water has been removed by evaporation, and the lake has been prevented from rising sufficiently to overflow. The salt, therefore, has always remained behind, and has increased until now it amounts to twenty-five per cent by weight of the brine of this most saline of all the world's important lakes.

South of the Dead Sea the Ghor becomes more and more completely a desert. Sand dunes lie in drifting heaps for miles; or desolate expanses of barren gravel extend from escarpment to escarpment. Thus the great depression continues until its lower end is hid beneath the waters of the Gulf of Akaba. Many believe that it persists far to the south beyond the Red Sea in the famous Rift Valley of central Africa, and perhaps in the long narrow trough of Tanganyika.

Remarkable as is the Ghor both geologically and geographically, these aspects were not the chief cause of Humboldt's famous opinion. The historical aspect of the depression appealed to him as even more remarkable than the others. If the Judean plateau had been open to the inroads of Arabs as Moab was, we may safely say that the Jews could never have developed their religious ideas to the high point at which Christ took them up. His life, his preaching, and his influence upon the world would never have been such as they are if the Ghor had not sheltered Judea. Yet strangely enough, or rather naturally, in view of its in-

hospitable character, the Ghor is even now but slightly known in the portion adjacent to Judea. Thousands of tourists, to be sure, visit it annually, driving from Jerusalem through Jericho to the Bathing Place on the Jordan, and thence back by way of the northern end of the Dead Sea, a carriage ride of a day and a half. Few, however, realize the profound importance of what they are seeing. More, indeed, are like the stout tired tourist at our hotel in Jerusalem, who complained that so fatiguing a drive was not in the least worth while for the sake of the sight of miles of desert, and a stop of fifteen minutes at the Jordan, and a minute and a half at the Dead Sea, which was all that the manager of his tour allowed. We have already said so much about the protection afforded by the Ghor to Judea, that we shall not consider the matter further. We shall devote our attention to other matters connected with the Ghor, such as the characteristics of the Dead Sea, its surroundings, and the people who live near it.

Where the Jordan River, grown turbid in its swift descent from Galilee, pours its light waters into the heavy brine of the Dead Sea, the sweet faint odors of the surrounding desert are displaced by the invigorating scent of salt marshes. Aside from the refreshing odor and the sight of sky and sea, there is little to suggest the lands with which the occidental is familiar. Standing west of the mouth of the Jordan, on a beach of

pebbles and cobblestones piled with gray branches of dead trees, the traveller sees on the right, southward, the deep waters of the Dead Sea, bounded on either side by a level-topped line of brown cliffs growing purple in the distance. At times the sea is dark blue, but in a quarter of an hour, as the wind changes, it may become peacock green and then pale pea-green, with purple shadows where clouds obscure for a space the hazy sky. On the left still lagoons, not salt like the sea, but merely brackish, are fringed with tall green reeds, back of which stand feathery tamarisk bushes, whose spikes of dainty white blossoms give out a delicate scent fit for a fairy princess. In front to the eastward across the rushing waters of the cool river the little Mount of Pisgah, whence Moses surveyed the Promised Land, forms a gently sloping brown dome rising slightly above the smooth, treeless skyline of the plateau of Moab.

In all the view there is no sign of man except a fisherman's hut of rude timber and rushes set among the reeds by a lagoon, and a small patch of green fields at Suweimeh on the plain at the base of Pisgah, where Sodom possibly stood of old. To the west above the barren escarpment of the Judean plateau, the tower on the Mount of Olives, only eighteen miles away, is also in sight; but it belongs to another world far removed from the sunken, heat-stricken depression of the Dead Sea. The view does not suggest death or

FERRY OVER THE JORDAN AND OLD LAKE DEPOSITS AT ED DAMIEH

PALM TREES KILLED BY A RECENT RISE OF THE DEAD SEA

desolation; for ducks, geese, and gulls swarm over the lagoons and over the shallow water of the delta, only a foot or two deep for half a mile from land. Here and there a kingfisher with white or yellowish breast poises with beating wings, then sinks and finally drops like a shot into the brackish water of the lagoons, only to rise and dive again in half a minute; cranes and bitterns flap slowly along, with legs stretched far astern; hawks, too, soar overhead; and far out in the shallow water of the delta, among scores of stranded tree trunks, tall whitish birds wade busily about, picking up food from a sea that is supposed to be dead. A sound alarms the long-necked fowl, and as they take wing a rosy flush like dawn shows that they are flamingoes.

The abundant life of plant and bird about the delta of the Jordan almost makes one suspect that the sea has been misnamed; that it is not dead, but living. Go along the lifeless beach away from the Jordan for a mile or two, however, and note the entire absence of shellfish and water-loving insects, and even of algæ. Look at the gaunt groups of dead tamarisk bushes or palms that stand offshore at the mouth of the occasional trickling streams at the base of the plateaus. They bear potent witness to the deadening power of the water, which during the past thirty years has risen six or eight feet. Or stand by the mouth of the Jordan and watch the muddy

stream. Something white shines and is sucked under, — a dead fish floating seaward; and after the first a second and perhaps a third, killed by the bitter brine of the sea even before actually reaching it. The refreshing smell of salt marshes is in reality for the most part the odor of decaying plants and animals killed by the saline water. The Dead Sea well deserves its name.

To facilitate the study of the Dead Sea, and especially of its old shore lines, a part of the equipment of the Yale Expedition consisted of a fourteen-foot folding boat of canvas. At Constantinople we were fortunately warned that the sea was not devoid of boats, as we had supposed. The former Sultan, Abdul Hamid II, as private owner of the Jordan-Arabah depression, had sold to a Jew and an Arab the exclusive right to put boats on the Dead Sea. They had fitted up an old forty-foot sloop with a ten-horse-power kerosene engine, and this with two tenders formed the entire Dead Sea fleet. The fishermen on the lower Jordan, sea-loving Greeks who still preserve the instincts fostered by the islands and bays of their fatherland, built some good-sized boats for use on the sea a few years ago, but were never allowed to launch them; and the craft now lie rotting among the pebbles and driftwood of the beach. The sloop of the concessionnaires makes occasional trips up and down the lake, to bring a few loads of barley from the southeast, or rarely

to carry passengers; but for the most part the boat lies idle. It does not appear to be a profitable speculation, although a well-equipped tourist launch might easily be made to pay if the remarkable nature of the scenery of the lake were once known. Thanks to our warning, we informed the American ambassador at Constantinople of our purpose to navigate the Dead Sea, and through his kind offices obtained permission to sail our little craft where we pleased. Otherwise we should have shared the fate of the Greek fishermen and been obliged to confine our navigation to the beach, for the watchman at the landing place protested violently against our infringement of the rights of his "patrons," and would not be quiet till a soldier came from the Mudir at Jericho to confirm our permit.

Our first two days on the Dead Sea were spent in trying the seaworthiness of our boat, examining the lagoons at the mouth of the Jordan, and becoming acquainted with the sea itself. We had heard much of the bitterness of the water, its greasy, disagreeable qualities, its tendency to corrode metals, and its habit of remaining quiet under a wind up to a certain point, and then suddenly rising into irresistible waves. It is scarcely so bad as it is painted. We expected to float half out of water when we bathed, and to find swimming difficult. As a matter of fact, one might stay in the water half an hour and never dis-

cover that it is different from sea water, unless he tasted it or got it into his eyes. In swimming one's shoulders are all the time out of water, and the ease with which it is possible to float is pleasant. The oddest sensation is when one tries to walk out to his depth, and finds that when the water reaches the armpits he is taken off his feet and vainly wiggles his toes in an attempt to touch bottom. If a lagoon is at hand back of the pebbly beach, so that the bather can wash after swimming, a bath in the Dead Sea is delightful. One day at the northwest corner, about two miles from the place where visitors usually go, we chanced to wash ourselves in a lagoon whose bottom was covered with bitumen. The water felt cool as we stepped in, but, to our surprise, it grew unbearably hot toward the middle. It was warmed by springs welling up from heated depths along one of the many fissures characteristic of the faults whereby the plateaus have been separated from the Ghor.

When the water of the Dead Sea dries upon hands or clothing, it is intensely disagreeable. After a day or two on the sea everything grows greasy and genuinely "nasty." It is almost impossible to wipe the hands dry, and when they grow dry from evaporation, the skin feels stiff, and one wants to hold the fingers apart just as when mud dries on the hands. As to the waves, we did not find them markedly different from

those of the ocean in the speed with which they rise, although they pound heavily when aroused.

The desert conditions of the Ghor are responsible for many phenomena beside the saltness of the Dead Sea. One day, for instance, when we were camped at a place called Suweimeh, at the northeast corner of the sea, our worthless Coptic servant, Shukri, came in with news that some Arabs belonging to the robber tribes of the middle valley of the Jordan had come down from the north and had robbed and stripped some priests at the monastery of Beth-hoglah, close to the road where scores of tourists daily drive to and fro in perfect safety. While he was relating this tale, Mikhail, the cook, appeared, to say that a report had come that the robbers had stolen the goods of an archæologically minded priest at Ain Feshkah and left him almost naked. Next we heard that the owner of the café at the bridge over the Jordan had been visited, and was now poorer than formerly. Then came faithful Abdullah with word that the camel-keeper beside whose black tent we were camped had seen the robbers cross to our side of the Jordan in order to be safe from the law. Fifteen or twenty of them had camped in the dense jungle a mile and a half from us, where I later saw the fresh vestiges of their camp. To complete our discomfort, the Arab who was to accompany Mr. Graham to Zoar as guide the next day, announced that he was afraid to go; and the local

sheikh, who was to bring horses to enable me to study the problem of Sodom, sent word that he intended to keep his horses in the mountains, where they would be safe. We slept with our guns beside us that night; or rather, to be truthful, we scarcely slept at all till toward morning. It is hard to tell whether the danger was real or imaginary. It certainly seemed real, and the camelman's little brown dog barked most of the night, as if some one were prowling around watching the camp; but nothing happened, and we woke to laugh at our fears. The man with the horses appeared at the appointed time, and we rode mountainward to investigate Sodom and Zoar.

Stories of raids and robberies are the common stock of travellers in Palestine; and one is almost afraid to tell them for fear of being thought to build on a small foundation of fact. Nevertheless, with the exception of Jericho and the places regularly visited by tourists and pilgrims, the lower portion of the Ghor is chronically in a state of unrest, as it has been for ages, partly because the peculiar physical formation of the country renders it difficult for the government which holds the plateaus on either side to get at the robbers, and partly because the heat and dryness of the region keep the Arabs in deep poverty. At best they manage to get a scanty living from their flocks and from a few half-tilled fields. A dry spring like that of 1909, when almost no rain fell

during March, causes much unrest because the supply of grass for the flocks is scarce. The Arabs see before them the immediate prospect of lack of the actual necessities of life. At such times, according to the moral code which their environment has fostered, there is no reason why a man should not rob if he sees men of another race or tribe living in plenty while he suffers want.

Lack of space forbids a description of the barren shores and limestone cliffs of the west coast of the Dead Sea, or of the salt deposits of Usdum at the southeast corner and the clays and salt of the desolate, flat-topped peninsula of the Lisan on the east. Enough that on both sides the shores are desolate and uninhabited, save for occasional nomads like those already described. An account of our experiences during a four days' trip down the east coast will afford some idea of the most impressive portion of the country around the sea. On this side of the Ghor the fault which separates the plateau and the depression is still more pronounced than on the other, and the scenery is correspondingly grander. Starting from Suweimeh, we rowed along a shore barren to the last degree according to Western ideas, but impressing us as decidedly green when we first came to it from the still more sterile western shore. Its greenness, needless to say, is due to the fact that here the westerly winds rise, and hence grow cool and give up a little moisture,

instead of descending and growing dry as on the western side. In the midst of this shore, a mile or two below Suweimeh, we were much interested to come upon a little promontory of lava, of which more anon. Then came the Wadi Ghuweir, and beyond it a small wadi full of palm trees growing wild. We came upon them unexpectedly, and were thrilled with that strange quickening of the imagination which the first sight of the graceful archaic trunks and rounded heads always produces. Farther south the palms become numerous, growing in graceful clumps wherever a little water oozes from the horizontally bedded cliffs, or where one of the numerous hot springs wells up to support a green patch of reeds. The steep cliffs, the over-hanging palms, and the sparsely scattered acacia trees give to the landscape an appearance remarkably suggestive of pictures of the mountains of the interior of Morocco on the borders of the Sahara.

Along the centre of the east coast lofty cliffs bound the sea, often rising in sheer precipices a hundred feet or more. Once, when we put up our sail to utilize a north wind in passing a bold headland with fine cliffs, the breeze grew to a high wind within a few minutes and changed to the northwest. The waves rose quickly, and we felt obliged to land; but precipices of naked red rock towered steeply for two or three miles ahead. To go back against the wind was impossible. We

were obliged to run before it, keeping as far from the shore as possible and watching anxiously for a landing place as wave after wave broke over our stern. At length a break appeared in the cliffs, a small wadi with a few boulders at its mouth. We jumped out into heavy breakers, which threw us down and dashed the boat against the rocks so violently as to puncture the canvas bottom. When we came to prepare dinner that night we found that much of our food had been spoiled by the brine, which had come in over the stern to a depth of two or three inches; while our water supply, contained in goat-skin bags, had become nauseatingly brackish. The salt of the sea had penetrated the leather by osmosis while the bags lay in the half-filled boat.

The loss of our provisions obliged us to turn back, but not until we had seen the mouth of the Wadi Mojib or Arnon, the finest scenery on the Dead Sea. Splendid red cliffs, banded with yellow and streaked with blue and green, tower out of the many-hued sea, which reflects all the colors of the rocks with added tints and harmonies of its own. Through the cliffs breaks a gorge scarcely more than a hundred feet wide at the base, and having walls that rise almost straight upward for several hundred feet. Out from the gorge flows a clear stream of fresh water, up which one can sail into the dark recesses of the chasm. Inward a narrow bed of reeds lies in pleasing contrast

to grotesquely sculptured cliffs of varied warm shades, while outward a frame of solid rock encloses a bit of the bright sea, with the brown, even-topped cliffs of En-Gedi and the country of Hebron in the distance.

Among the scientific problems connected with the Dead Sea none is more interesting than that of Sodom and Gomorrah. Hundreds of pages have been written to prove that the story is a myth, or that the ancient towns were destroyed by the bursting forth of oil wells like those of Texas or Baku, which sometimes are ignited and burn for days. Other hundreds of pages have been devoted to proving that Sodom and Gomorrah were, or were not, at the north end of the Dead Sea, and that they were, or were not, buried under the saline deposits at either end of the lake. Among recent writers there seems to be a tendency to believe that Sodom and its sister town may have been located at the south end of the lake where the name Usdum is thought to represent Sodom, and where Arab tradition now locates the ill-fated cities. The means of their destruction are believed to have been the oil wells mentioned above. This rather unsatisfactory conclusion has been adopted largely because it has been supposed that no volcano is located in such a position that it could have borne any part in the story.

The identification of Biblical sites was not part

of the intended work of the Yale Expedition, but no intelligent man can wander among places whose fame is world-wide without becoming keenly interested in them. According to the story in Genesis, Lot and Abraham were at Bethel, ten miles north of Jerusalem, when their herdsmen quarrelled and they decided to separate. "And Lot lifted up his eyes, and beheld all the plain of the Jordan, that it was well watered everywhere, before Jehovah destroyed Sodom and Gomorrah, like the garden of Jehovah, like the land of Egypt, as thou goest unto Zoar. So Lot chose him all the plain of Jordan." Then the story goes on to the time when "Jehovah rained upon Sodom and upon Gomorrah brimstone and fire from Jehovah out of heaven," while Lot fled to the near town of Zoar. He did not stay there long, but "went out of Zoar and dwelt in the mountain — in a cave."

Having freshly read the story and having looked over the strong arguments for locating the towns south of the Dead Sea and for believing them to have been destroyed by something in the nature of bituminous outbursts, I was taken by surprise when I visited the little ruin of Suweimeh and picked up bits of genuine scoriaceous lava, while the sheikh who acted as guide told the story of Sodom as the story of Suweimeh. This side of the Ghor, as we have seen, is much greener than the other, and in the days of Lot it

may well have been like "the garden of Jehovah"; for in ancient times the climate of Palestine was probably much moister than it now is. I went into the mountains at once from Suweim in order to see the source of the lava. As we climbed the lower hills, the sheikh noticed that I picked up black stones and broke them open. "Don't bother with those," he said. "Up here," pointing southeast, "there is a whole mountain of black rock like that." Not two miles from Suweim, near the line of the great fault which separates the Ghor from the plateau of Moab, we found the mountain, a genuine little volcano of recent date geologically. From it flowed the lava which made the small headland already mentioned between Suweim and Ghuweir. The name Ghuweir is believed by many students to be a corruption of Zoar, although it may also be an Arabic word, the diminutive of Ghor, meaning "Little Valley." A late eruption of ashes from the volcano, perhaps long after the lava flow, may easily have wrought havoc in a town located near Suweim. On the other hand, Ghuweir lies in such a situation that it would be protected by intervening hills.

The present ruins of Ghuweir doubtless date from a time at least two thousand years after the days of Abraham and Lot. One work of man, however, may go back to the period of the Patriarchs, and may have played a part in the Bibli-

cal narrative. Near the head of the valley which leads eastward from Ghuweir up toward the plateau of Moab we discovered a carefully excavated cave among the mountains at a place called El Ghuttar, between Abu Hassan and Beth Peor. The cave is about twenty feet long and fifteen wide, carefully hewed out of the limestone above a spring. Two windows look down the wadi toward Zoar. A door with a rock-cut trough to lead off rain water is so located that it can be reached only by climbing a precipice by means of six or eight little niches cut in the rock, or by climbing down over some difficult steps in the cliff above. Nowhere else in this region is there known to be an artificial cave upon which any such care has been bestowed as upon this. The discovery of the cave supplements the volcano and the tradition of Suweimeh in supplying all the elements of the story of Sodom and Gomorrah in exactly the location where the Biblical account would lead one to expect them. The supposition that the climate of past times was different from that of to-day disposes of the difficulty which has arisen from the Scriptural reference to the fertility of the land. On the whole, the result of a strictly geographic study of the region tends to show that the Biblical account is almost exactly correct. The fact that students of the highest ability have been in such doubt as to the location of Sodom and Gomorrah shows how imper-

fectly the Ghor and the shores of the Dead Sea have been explored. So far as the mere name is concerned, few lakes are better known than the Dead Sea, but few have played a smaller part in the life of the people around them. To-day, as always, most of the coast of the sea is inaccessible and uninhabited. In all the lapse of history only one important set of stories centres around the Dead Sea,—the tales of Lot; and they have been preserved not so much because of the sea as because of the volcano which overwhelmed the ill-famed towns. The future holds nothing in store for the sea better than the past. The hot, unhealthy coasts may in time be visited for their scenery, or for their associations, but the sea is dead, and out of it no life can come.

# CHAPTER X

## BEYOND THE DEAD SEA

THE regions east and southeast of the Dead Sea, that is, Moab and Edom, are so much less important than those to the west that we shall discuss them with comparative brevity. Their history is full of storm and stress by reason of their openness to the desert. Here the Moabites and Ammonites struggled at the time when the Israelites were streaming in across the country from the east. Then, so far as we can gather from the ancient records, the Moabites settled into a peaceful agricultural people until the days of Mesha, the author of the famous Moabite Stone. During the succeeding century the Moabites for some reason betook themselves to plundering, and were a scourge to Israel, Judea, and Edom. Next we find them once more a peaceful, agricultural race. The Nabateans followed them, coming up from the south. Then the Romans occupied the land and built magnificent cities, wherein the temples of the gods at length gave place to Christian churches. The Moslems overturned the past civilization even more completely than in other parts of the world. The Crusaders founded a kingdom, and Renaud of Chatillon

ruled with a hand of iron from his great castle on the hill of Kerak. His misdeeds were among the chief causes of the destruction of the Crusaders' power. After the great battle of the Horns of Hattin, near the Sea of Galilee, the conqueror, Saladin, offered him his life if he would become a Moslem, but he would not yield. While they talked in Saladin's tent, iced sherbet was ordered for King Guy, another prisoner. The king, knowing that a Moslem host feels bound to protect all to whom he has given food, handed the cup to Renaud. "Thou hast given him to drink, not I," said Saladin, and so pronounced the doom of the Christian whom Islam feared as its fiercest foe. So Moab passed once more to the Moslems. With them it has remained for over six centuries, but not in peace. A land so open to the desert cannot have peace.

Inasmuch as Moab is a plateau, one might infer that it would be as difficult to traverse as Judea. So it is on the western border where a magnificent fault scarp breaks off to the Dead Sea. The gorges, however, whose mouths we saw from the sea, soon come to an end. Moab slopes eastward very gently. Hence, on that side there are no deep valleys, and the approach from the desert is easy. Our journey in Moab and Edom, on our way to the famous rock-city of Petra, may serve to illustrate the character of the country. First we must see its relation to the Ghor, and then its

character as a plateau. We shall see that the effect of the gentle slope to the eastward is to divide the country into strips along one of which runs the great Way of the Pilgrimage and the Hejaz Railway. And we shall find how great a part has been played by the openness of the land to the desert, the abundance of ruins, and the change which has taken place here as elsewhere.

Starting from Jerusalem, whence most journeys in Palestine begin, we spent the night at the bridge over the Jordan. The next day we left the deeply sunken Jordan Valley, with its strange sub-tropical vegetation of prickly jujube trees and thick-leaved "oshr" shrubs, whose yellow, branching stems suggested huge milkweeds bearing yellow "apples of Sodom." For four tiresome hours the way led steeply upward over a sun-baked slope of white limestone. The horses' feet clattered over what was once a Roman road, but is now a mass of loose fragments. We were climbing the steep escarpment on the west side of Moab. Above us lay the plateau, whose level, dark blue line forms so prominent a feature in the eastward view from all the higher hills of Judea.

The Mountains of the Abarim, or Opposite Side, is the expressive name by which the old Jews called the escarpment. Then, as now, the land to the east of the depression of the Ghor be-

yond the Dead Sea and the Jordan Valley was a country apart and separate, cut off from Judea by a great trough whose hot slopes are hard to climb and whose lower portions are the haunt of robbers. Because of this the countries beyond the Ghor, especially Moab and Edom on the farther side of the Dead Sea, are even now remote regions where one may wander for weeks without fear of meeting the all-pervasive tourists who swarm around Jerusalem.

Toward the top of the ascent of the Opposite Side the slopes become gentle and begin to be clothed with genuine green grass instead of with the poor weeds which grow lower down. As the way became less steep and rocky, we hurried onward with eager desire to see what lies beyond, and toward sunset reached a small rounded eminence near Mount Nebo and almost four thousand feet above the Dead Sea. Cool breezes revived both horses and men after the hot day's ride from the bridge over the muddy, jungle-bordered Jordan near Jericho. A quickening sense of space and freedom invigorated us, as the view suddenly expanded to the limits of a level horizon. The sight of the spring verdure which clothed the country to the eastward that day in April was so delightful that we almost forgot to take a backward look to the west at the parched brown hills of the Judean slope and the deep hollow of the Ghor. We had come to a land very different from the rounded

rocky hills of the plateau of Judea, a land richer and more beautiful, but far less varied and inspiring. Looking eastward, we realized that we had not been climbing mountains, but had been coming up the steep side of a plateau composed of layers of limestone dipping almost imperceptibly eastward. Far as the eye could reach, a glorious succession of gently sloping hills rose and fell and rolled softly away to a well-nigh limitless horizon, each one a hill when looked at alone, but all together giving the effect of a plain with a slight slope to the east. Each swelling hill and smoothly falling vale was green and fresh with grain or rich brown with newly ploughed fields; so at least it seemed at first, but as we looked into the purple distance illumined by the level rays of the setting sun, brown hills began to take shape, and we saw that the green region extended only about fifteen miles.

Moab consists of four narrow strips running north and south parallel to the Ghor. Already we had traversed one of them, that is, the steep westward-facing escarpment. It presents an unbroken line of rugged cliffs extending southward for a hundred and twenty miles, from a point a little north of the Dead Sea along the whole of both Moab and Edom to the desert regions beyond Petra. Now we were looking across the second,— a narrow strip of invariably fertile land scarcely ten miles wide. The third, a similar strip

of land that is fruitful in years of good rainfall, but barren at other times, was in plain sight to the east. Beyond it we dimly saw the fourth strip, a broader band of pasture-land which bears grass in winter and early spring, but soon dries up completely. Each strip has its own peculiar people. The rugged escarpment is almost uninhabitable, but is occasionally frequented by the negroid Arabs of the unhealthy Ghor, who drive their flocks up among its cliffs for pasture. The fertile crest of the plateau bears a line of villages inhabited by Syrian farmers, or Fellahin, the descendants of Arabs who came in from the desert long ago. The next strip is a debatable land whose most interesting features are, in the first place, a long line of ruined towns indicating a decrease in fertility, and, second, the new Hejaz Railway to Mecca. Finally the fourth strip, the broad pasture land between the ruins and the sandy Arabian desert far to the east, is the haunt of wandering Beduin, who remain in their own region when propitious rains cause the grass to grow, but swarm into the other strips in dry seasons like that of 1909.

The towns and villages of the fertile strip of Moab are few and widely separated. Two or three miles from the edge of the escarpment we came to one of them, Madeba, composed of some three hundred flat-roofed houses of stone and mud set on a hill. On all sides waving wheat-

fields encroach upon the ruins of what was once a fine provincial city, the seat of a bishopric in the early Christian centuries. On the edge of the town a new Greek church rises square and ugly. It is no more beautiful than a New England barn, but is intensely interesting because of what it conceals. A dozen years ago the Syrians of the place, having moved thither not many years before from Kerak, or Kir of Moab, two days' journey farther south, decided that they needed a new church. As they dug to lay the foundations on the site of an ancient edifice, they came upon bits of a fine mosaic. With the incredible stupidity of orientals they drove their pickaxes into it, thinking that perhaps stores of gold and silver might be concealed underneath. Fortunately word of the find came to Said Effendi, our wheat-raising host at Beersheba, who was then a subordinate official at Madeba. He saw that the mosaic was unusual, but more than that he could not make out. He succeeded, however, in persuading the builders of the church to leave what remained until word could be sent to the government at Jerusalem and a foreigner skilled in antiquities could look at it.

To say that the mosaic is the oldest map in existence gives no idea of the enthusiasm which it excites. When the young acolyte who was in charge during the priest's absence grudgingly lifted the heavy planks from off the mosaic and

swept up the dust of the past year, the map did not seem of special interest. As he cleaned it with a wet rag, however, and the clear red, yellow, blue, black, and white squares of stone began to form themselves into tangible shapes, I found myself watching the process with a warm thrill of interest and almost excitement. It seemed like profanation to walk about over the precious map in hobnailed boots. So I sat on the floor and crept about, reading the Greek names and picking out the Jordan River with its bridges and fish, and the Dead Sea with its boats, in which can be seen the legs of oarsmen whose bodies and heads were long ago replaced by meaningless squares which do not offend the Moslem conquerors by representing living creatures. The lion and other beasts which inhabit the Jordan Valley have been treated likewise. They are chiefly legs and tail, but an antelope has been left intact, as have the palm trees which fill the blank spaces of the hot valley. Elsewhere colonnaded cities and cathedrals are scattered thickly over Palestine and the neighboring countries as far as the strangely curved mouths of the Nile. They were surprisingly numerous in the days when the map was made, four or five centuries after Christ. The people who could construct such a map, so beautiful and in its way so accurate, must have differed greatly from their degenerate successors. The contrast between the past and the present is well typified

on the one hand by the patient, loving skill which must have gone into the construction of the map, and on the other, by the callous ignorance of those who were about to destroy it in the hope of finding treasure or for the sake of building an ugly barn for the performance of religious rites which they do not understand. The cause of the contrast is one of the world's great problems. Madeba and the surrounding regions of Moab may not rank high in their contribution to history, but they are of great importance because they suggest a remarkably close connection between physical changes and moral and intellectual revolutions.

As we rode eastward from Madeba we were amazed to see how mile by mile the country grows drier. At first deep fields of waving wheat were studded with large blue irises and vocal with larks. Soon all the fields were withered and grayish green, the irises were of another species, dainty brown, and the exultant larks no longer sang by the score upon the ground as well as in the air. Then the fields became so dry that it was hard to tell whether they had been planted that year or not. The people said that the crop had been sown, but had merely sprouted and then dried up because of the unusual drought during February and March. Twenty miles east of the edge of the escarpment the only hint of vegetation was brown patches of diminutive grass an inch high which

had grown here and there during the winter. Yet looking back to the west we could see the fairest of green-clad slopes; treeless, to be sure, but rich and attractive. Here, as in the rest of Palestine, the west wind from the Mediterranean Sea brings practically all the rain. During the rainy season from October to April the air, after rising to the Judean plateau, and descending into the deep Ghor, rises once more at the escarpment of Moab, and waters the edge of the plateau, but by this time the air contains no great amount of water, and the gentle eastward slope of the plateau furnishes a descent sufficient to cause the wind quickly to become warm and dry.

In this fact, and in the openness of the country desertward, lies the explanation of much of the difference between the significant history of Judea and the unimportant history of the regions east of the Dead Sea.

One of the most interesting features of the drier eastern parts of Moab and Edom is the great pilgrim route from Damascus to Mecca. Mohammedanism is preëminently the religion of the desert. It almost seems as if the first pilgrims located the road in the driest possible place in order to impress upon their successors the rigors of the desert. As a matter of fact they followed the easiest route, just on the border where supplies could be obtained from the cultivated land on the west, and the caravan animals could

find grazing in the untilled grasslands to the east. To-day the desert has encroached upon the sown. The road in most of its course through Moab and Edom lies beyond the limits where cultivation is possible. We crossed the road on our way to one of the many outlying ruins which proclaim the change during the last thirteen or fourteen centuries. The Ghazanide palace of Meshita, as the ruin is called, was built by Persian invaders in the sixth century. It has now been despoiled, first in order to make a present of the façade to the German Emperor, and then to obtain stone for the bridges of the new Hejaz Railway to Mecca. A little west of the palace the smooth, brown plain is furrowed with trail after trail, the hundred tracks of the old pilgrimage road along which for twelve centuries weary caravans have toiled patiently through the desert. Only a few of the many interlacing paths show signs of recent use, for the caravans have decreased in size during the last century. As we crossed the hundred-trailed "Derb el Haj" on our way back to the habitations of Moab, a sound of distant whistles came through the sunset air, the tooting of an engine on the new "Way of the Pilgrimage," the easy iron way which has succeeded the painful route where, in the portion south of Edom, camels used to die of thirst, and footsore pilgrims sometimes went mad from utter weariness. In 1908 the great Mecca caravan passed down the old

historic road for the last time: henceforth all the pilgrims will go by rail. It is no light thing when an institution like the Haj caravan passes out of existence. For centuries it was the greatest of unifying forces in the Moslem world: more, perhaps, than anything else it tended to draw the Mohammedans of all races together and to promote the democratic and fraternal spirit which is so much more marked among the various Mohammedan nations than among Christians. Sultan Abdul-Hamid II, in his zeal for Islam, believed that he had done a great thing for the faith in making the pilgrimage to Mecca easy. It is probable that he has done the reverse, for the one-tracked road of steel puts an end to the months of hardship which in the old days unified the Faithful who wearily plodded along the hundred-tracked road of earth and stones.

Moab, and likewise Edom, is full of ruins. Three ruins for one modern village is a very moderate estimate. The places which now are villages once were cities. Travellers often tell us that the scantiness of the present population and the abandonment of ancient sites are due to misgovernment and Arab raids. This is only a half truth. In the cases where it is true, the physical incapacity of the country is often at the root of the misgovernment and raids. In many cases, however, the country simply cannot support an agricultural population because of lack of rain. For

WOMEN OF JUDEA AT THE MOABITE RUINS OF KASTAL

SHEPHERDS ON THE BORDERS OF GILEAD

example, at the ruins of Ziza we discovered a bilingual inscription in Nabatean which identifies the place as the Baal-peor of the Bible. It must once have been an important town. After the construction of the railroad about sixty families settled here in 1907, coming from Es Salt, Hebron, Nablus, and other places. The government brought them, or at least assisted them. The year 1908 was the first in which they raised crops. The yield was good, being ten or twelve fold. In 1909, however, most of the fields failed utterly. The man who reaped as much as he sowed was fortunate. Under such conditions the inhabitants must of necessity move away. Two or three such years in succession, as occurred in the early seventies, would completely depopulate the place. A few miles away at Kastal, which lies a little higher than Ziza, we found conditions only a trifle better. Some forty or more families came there about 1905 from Jerusalem, Hebron, and elsewhere, and took up their abode in the ruins of what was once a large, prosperous town. Like Naomi and her family, they had come from Judea in a time of stress, but life had proved harder in the new home than in the old. Now, hearing that there was bread in the home of their fathers, they were planning to leave their cropless fields and go back, even as Naomi went with Ruth from some unknown village perchance not far away.

It would be a mistake to underestimate the

importance of Arab raids, as well as of scanty rainfall, in depopulating the country. They have always occurred and still occur. After spending the night at Ziza, my guide and I left the main caravan, but meant to rejoin it and pass the next night at Diban, the ruined town where Mesha, the Moabite king, set up the famous Moabite Stone after his war with the kings of Israel, Judah, and Edom, nine hundred years before Christ. An hour after sunset, however, Diban was still far distant, and we were wandering without a path. Hearing the barking of dogs, we rode toward the sound and soon saw the fires of one of the many encampments of Arabs who had been driven in from the desert by the drought. On one side of an open square a large fire was blazing, at the man's end of the most spacious of the low black tents. The intermittent blaze, fed by dry weeds of the desert, lighted up a slab of limestone bearing the rudely scratched insignia of the tribe of Beni Sakr. We dismounted silently, as men do in a land where no one knows whether those whom he meets are enemies or friends. The Arabs, grouped cross-legged or a-squat around the blaze, said nothing, but the chief men rose and motioned us to be seated, while the others moved to places of less honor. A quilt was brought to spread on the coarse woollen rugs, and another was rolled up for me to rest my left elbow upon. It was only after we were comfortable that conversation slowly began. While we

talked, a servant brought out the coffee-tongs, — two spoons of iron chained together and having handles eighteen inches long. Green coffee beans were placed on the larger spoon, which was about six inches in diameter, and were held over the fire to roast. The other spoon, only an inch in diameter, was used to stir the beans and prevent burning. When the coffee was roasted the slow process of grinding began. The grinder evidently felt that his work was of great importance and should be done artistically. Each stroke of the great wooden pestle was accompanied by a double click on the side of the deep wooden mortar. Then the coffee was boiled, first in one blackened copper pot with a long straight handle, and then in another. Finally the grinder tasted it. Then the cups, two in number, began to circulate. Each man was served with only two or three swallows of the strong black fluid, but the cups were passed to the chief men several times. After an hour or two dinner was brought in, a tender boiled lamb, which we pulled to pieces with our fingers. Thin sheets of unleavened bread were provided, not only to be eaten, but to serve as scoops for sour milk or soft butter, and with these a dish of cracked wheat boiled soft and eaten with the hands.

Conversation was limited, as the guide, although proficient in Arabic, knew very little of Turkish, the language in which he talked to me. One old Arab seemed much worried about my pith helmet.

He did not like the cut of it, especially the way in which it failed to protect the ears. He could not see how it was possible to sleep in such an outrageous thing. It did not occur to him that any one would take off his headgear in the cool night. The gestures which he and the others used were extraordinary. The sheikh tried to make me understand how he and his people fought with the government not many years ago. His eyes were so fierce and his gestures so violent that I began to think he was really getting angry. With all his soul he hated, so he said, the uniform of my guide, a soldier, but the man himself was good apart from that which his clothes implied. "Why does the government take taxes from poor Arabs who come from the desert in times of drought?" he asked. "Have not the Arabs the right to feed their flocks wherever there is grass? Some day soon the soldiers will see what my people will do."

After the sheikh had calmed down he thoughtfully threw a cloak over my shoulders, for the night was chilly, with a temperature of only about forty degrees. Then when we went to bed he took great pains to see that I was warmly covered, especially my head, and finally left the guide and myself and two other guests lying on the ground around the ashes of the coffee fire, with saddles for pillows. With the dying of the fire the beauty of the moonlit night came over us. The occasional faint bleat of a young lamb or the suppressed bark

of a dog only emphasized the stillness. We grew drowsy and fell asleep on our hard beds as the embers ceased to glow. Suddenly the sound of guns made us sit up wide awake. The dogs began to bark wildly, men shouted, and the shrill cry of women arose. The camp jumped to its feet in a moment; the men flung their striped white and brown abbas of wool over their shoulders, slipped their feet into their low shoes, if they had any, and with guns in hand hastened to mount the horses and camels tethered near the tents. Before I could put on the clumsy shoes which civilization imposes upon us, they had ridden off to the southeast, followed by the women on foot. In a few minutes the bright moonlight showed the women, with queenly gait and haggish faces, streaming back down the hillside in their trailing garments of dark blue. Immediately the camp fell once more into quiet. Nothing unusual had taken place; it was merely a "ghazzu," or raid. The Howeitat Arabs, enemies of the tribe of Beni Sakr, had come in from the desert to the better-watered region, and had driven off a flock of a hundred or more camels which had been herded for the night at a little distance from the camp. The Arab lives in constant expectation of such occurrences. When the two gray-bearded men who were our fellow guests were awakened by the guns, they merely sat up, realized what had happened, and lay down once more to sleep. It was

nothing to them if other people's camels were stolen. Perhaps it would be their own turn to-morrow, and then they would exert themselves. In the chill damp morning they and we, without washing or eating or speaking to any one belonging to the camp, took our horses and rode away, for our hosts were gone, and the women have naught to do with guests.

A little south of the southern end of the Dead Sea, the province of Moab merges into that of Edom. In most respects the two are similar. Edom, however, is higher and more mountainous than Moab. Its western part, overlooking the Ghor, is extremely rugged. Because of the greater altitude and deeper valleys, perennial springs are found in a few places. They serve to irrigate such villages as Tafileh, Buseir, Elchi near Petra, and Maon far to the southeast. Desertward Edom is open, just as is Moab. Westward it is sharply separated from the Ghor by the steep escarpment which we descended on our way from Tafileh to the Negeb. Nevertheless, the part of the Ghor south of the Dead Sea belongs to Edom rather than to any of the other provinces of Palestine.

The most important section of Edom is Petra. I shall devote the rest of this chapter to a description of that place and of our ride thither from Kerak, the chief town of Moab. In a cold rain and mist on the 8th of April we left Moab, going westward down the Wadi Kerak, one of the fine

canyons cut by streams which flow through the western escarpment. Leaving the few olive and fig trees of Kerak we descended rapidly into warmer and drier regions; and by mid-afternoon had gone down four thousand six hundred feet to the tents of the Arabs of Ghor-i-Mezara, the dark-skinned, thick-lipped people who inhabit the torrid Ghor on the east side of the Dead Sea at its southern end. In the tent of the sheikh we received a half-hearted welcome quite unlike that of the true Arabs. These people are surprisingly negroid. The torrid heat of the Ghor seems to have caused a process of natural selection. Individuals with thick lips, curly hair, broad noses, and dark skins are apparently better fitted for life in the fierce perpetual heat than are those of the ordinary Arab type.

The people of the plateau of Moab have so little communication with the depression of the Ghor far below them to the west that at Kerak we found it impossible to get a guide who knew anything of the country south of the Dead Sea, and there was even difficulty in getting one who knew the way to Mezara, only fifteen miles away, at the foot of the escarpment. At Mezara we fortunately found an Arab who had come up from the south and wanted to go back. For half a day he led us along the shore of the sea, sometimes among thick vegetation, including splendid branching reeds twenty feet high, and sometimes over bar-

ren wastes of boulders. Then at the southern end of the sea, where two large wadis pour out their water at the foot of the escarpment, we rode among green wheat-fields artistically studded with thorny bushes. In the absence of anything larger, the bushes gave the effect of an English park full of trees, but when a man appeared, it became evident that either he was a giant or the trees were mere dwarfs. It rained at intervals, to the great joy of all the country, for the long drought was broken at last, and the danger of severe famine was averted from the more prosperous districts, although suffering must ensue because already so many crops were injured. The rain was warm in the Ghor, but on the plateau hail fell and covered the country like snow.

South of the Dead Sea our guide led us through the dry wastes of the broad Arabah. Climbing a long slope of sand mantling an old lake bluff three or four hundred feet high, we came out upon a smooth plain of gravel, more sterile than people who have never seen a desert can well realize. When the gravel came to an end we plodded through drifts of wind-blown sand shading beautifully from straw-color to pink, and disposed in drifts of most graceful form. At our left lay the steep slopes of the escarpment of Moab and Edom, where spurs of black were backed by those of red, and these in turn by those of white and buff. Far up on the heights of Edom, trees dark-

ened the upper crags, although all the lower cliffs were utterly barren. Once we came to a place where the water of the Wadi Fedan makes the desert literally blossom as the rose, for the banks of the brook, even beyond its dwindling terminus in the gravel, are lined not only with reeds and tamarisks, but with pink oleanders in full bloom at the time of our visit. Toward nightfall we were in the desert once more, in a plain of soft silt and sand dotted with small green bushes. Once the guide looked back and thought that on a crag of granite he saw five men; and we looked to our guns, thinking of robbers. At sunset the guide rode anxiously from sand-hill to sand-hill, looking for the insignificant marks by which his practised eye made out the location of the spring. The desert is almost the same the world over. Save for the costumes of the men, we might have been riding in western China far to the east, or in Arizona, still farther to the west.

That such a desert was once the scene of active traffic, seems incredible. Yet the next day, as we left our desert spring of dark sulphurous water and rode south over vast wastes of rough gravel and boulders, we were following the track of thousands of ancient caravans. When we turned to the southeast up a splendid gorge of red granite, we followed the traces of the Roman road which once ran from Gaza across the desert regions south of Palestine to Petra, the city of stone, and then on

to the Gulf of Akaba on the one hand and the Persian Gulf on the other. The road is entirely destroyed except in a few level places, and the long steep climb to a height of twenty-five hundred feet above the Mediterranean Sea must be made over an almost invisible trail composed of angular granite fragments.

Above the granite a rough terrace half a mile wide has been formed by the wearing back of a deep red sandstone capped with white sandstone. Here the elevation and the western exposure combine to cause more rainfall than elsewhere. Accordingly cedar trees are numerous, and give a pleasing aspect of verdure to the otherwise desert landscape. As a winter view in a fertile land is like a face asleep instead of awake, so a verdureless scene in the desert is like a body without life, —beautiful perhaps, but depressing.

The geological structure of the plateau of Edom is practically identical with that of southern Utah north of the Grand Canyon of the Colorado. Both countries are now deserts, and in both the square-shouldered, straight-sided cliffs of dark red and the domes of white sandstone indicate that deserts prevailed ten or fifteen million years ago in the Jura-Trias period. Both regions have been uplifted in the same way; and as a result the two distant parts of the world closely resemble each other, not only in scenery, but in the general mode of life of the people.

Toward night we came to higher valleys three thousand feet above the sea, and there we began to find ancient canals and walls of fields, although now there is no water for irrigation. Then we reached the caves of El Beida, — cisterns, houses, temples, and tombs hewn in the solid white sandstone. A long narrow slit in the rock leads into shady green depths where the sunshine never comes, and where the foot treads upon that rarest of treasures in this dry land, — a carpet of soft green turf. On either side pure white cliffs tower almost perpendicular for a hundred feet or more, and then break away a little and at much greater heights form innumerable domes whose white tops suggest drifted snow. Of these, however, one gets no hint from below, for only the precipices and the numerous caves and tombs are in sight. Some of the caves are cisterns into which rain water was once cleverly led by means of narrow flights of steps which served as troughs. Several of the tombs are carved into the form of graceful Roman temples with pillars, arches, and pediments, while others similate Nabatean houses with stepped roofs.

From El Beida we proceeded to the metropolis of Petra, the far-famed and oft-described city of stone, whose tombs are temples cut in solid rock. There we camped in the "Treasury of Pharaoh," which is in reality a temple of Isis cut in the side of a narrow gorge like that already described at

El Beida, except that the sandstone is red and weathers into fine square masses instead of being white and forming graceful domes, and the floor is covered with pebbles instead of with soft green grass. From the door one looks out at the Sik. It suggests a great crack, opening to a width of twenty to a hundred feet at the bottom and widening somewhat upward, but in reality it is the work of a stream, which has carved a valley with great rapidity on account of the uplift of the plateau.

It is hard to realize how greatly Petra has changed. To-day its ruins lie in a desolate valley whose only inhabitants are Beduin who camp with their sheep among the fallen temples for a few weeks each year. At the time of our visit in April, in spite of the rains of the last three days, water could be obtained only by going half a mile or more either above or below the ruins. Even the small village of Elchi, higher up the valley, was suffering for lack of water to irrigate part of the fields upon which the villagers depend for food. Yet in the past there was water enough not only for Elchi and its dry fields, and for other fields or orchards whose walls appear on every side of Petra, but for the city itself, which must have had at least twenty or thirty thousand inhabitants, and possibly more. It is almost past believing that such a city could exist in so dry a situation. The inhabitants were not poor like those of modern

ROCK THEATRE AND TOMBS AT PETRA, LOOKING NORTHWEST TOWARD MAIN CITY

Kerak and Elchi. They were among the really opulent people of their day. Nor were they crude and uncivilized. Their city was filled with the finest products of the artists of the time.

As one wanders among the ruins and looks at the theatre of red sandstone, the columns of ruined temples, and the hundreds of tombs, some of which have grand façades like temples fifty and sixty feet high, the wonder of Petra grows. Not beauty of architecture or delicacy of design appeals to one here, as in the Taj Mahal or other famous edifices; not simple grandeur as in the Pyramids and the Sphinx; not pure beauty of scenery as in the Alps: in any single respect other places go far ahead of Petra, and even in its own special type of wild desert scenery southern Utah much excels it. No place, however, affords a more striking combination of architectural skill, vastness of design, and grandeur of scenery, and with it all full measure of the fascinating element of romance which enshrouds the site of vanished civilization.

A peculiar interest attaches to the beginnings of great matters; and this it is in part which makes one feel that in all the region beyond the Dead Sea no sites are more important than the ruins of the old Semitic "High Places" on the tops of the crags five hundred feet above the town and the main tombs at Petra. To reach them one must climb long flights of weather-worn steps hewn in the solid rock; and sometimes it is necessary to

scramble on hands and knees where the old approaches have been destroyed. At the top the ruins of the castles built by the Crusaders first catch the eye, but one passes them with little more than a thought. Nor does one dwell upon the traces of Roman domination in the early Christian centuries before the Mohammedan conquest; and even the vestiges left by Nabateans of the time of Christ are of little interest compared with the more ancient High Places. The Nabateans were doubtless the last to worship on the sacred hilltops, but sacrifices to unknown Semitic gods were probably offered there thousands of years before their day. The old Semites were simple in their art; indeed, they scarcely can be said to have had any art in building their places of sacrifice. A platform hewn in the solid rock on a hilltop, and a high altar with a few steps and some troughs cut in the living rock, — that was all they needed. Sometimes, in their zeal, they hewed all the stone from the brow of a hill, cutting away the rock to a depth of twenty feet over an area a hundred feet in diameter, and leaving only one or two symbolic obelisks of living rock rising as sacred symbols in the midst of a place of prayer. One thing more they craved for in those old Semitic days, — the thing for which they most deserve our praise, — a broad view earthward, heavenward, with nothing between themselves and the greatness of God. If ever a man feels worshipful, it is on the top of a

lonely mountain. When the priests at Petra took the offerings up to the great High Place on the highest point of a craggy summit, higher even than the place of prayer surrounding the obelisks, something of reverence must have come over even the most worldly among them. Worship in places like this must surely have played some important part in the development of high religious ideals among the early Semites, to whom the half of mankind is indebted for its faith.

# CHAPTER XI

## THE LANDS OF JEPHTHAH AND OG

Gilead and Bashan stand for ideals almost as diverse as those of Judea and Samaria. Strangely enough the physical conditions in the two sets of provinces are reversed. Gilead, whose history has been characterized by seclusion, and Samaria, where lack of seclusion has been the dominant note, both possess the Appalachian type of folded geological structure. Sterile, exclusive Judea and the rich open grain lands of Bashan are both plateaus of horizontal limestone. Such a reversal of the conditions naturally expected may seem to indicate that, after all, the influence of the form of the land upon history is not so potent as we have inferred. Yet this is far from the case, as we shall shortly see. Bashan is used in the Bible as an example of wealth and accessibility because, although a plateau, it is not dissected. Moreover, it is not bounded by protecting bulwarks, as is Judea. On the contrary its outlying portions, such as the mountains of Jebel Druze and the volcanic Leja, that odd little patch of fine cellular lines in the northeast corner of most maps of Palestine, have always proved a menace to the fertile plains. In like manner Gilead stands for seclusion and for

a healthful land of balm because, although of the same folded structure as Samaria, its mountains are relatively high and inaccessible, not so open and easily traversed as those of its neighbor across the Ghor.

If the whole course of history be considered, Gilead has been more Jewish than any region except Judea. In the early days of the Israelite occupation of Palestine, Jephthah and his Gileadites were the bulwark which prevented the Ammonites from over-running the land. So strongly did this event impress itself upon the Hebrews that the whole nation for centuries observed a day of mourning for the daughter who fell a victim to the warrior's rash vow. At a later date Ishbosheth, the son of the defeated Saul, fled to Gilead for refuge, and the mountaineers rallied to his support against David. When Absalom rebelled and sought to dethrone his father, it was David's turn to flee to Gilead. Thither the guilty son followed the old king, and met an ignominious death for lack of the craft which enables a man to take care of himself in the forest. The Gileadites, like all mountaineers, were a conservative people, not readily given to changing their ideas or their allegiance. In Christ's day they still were as Jewish as the Judeans. Hence, in going up to Jerusalem, the Galilean Jews commonly crossed the Jordan a little below the Sea of Galilee, and went down the east side of the river, thus avoiding the despised

Samaritans. The events of one such journey on the part of Christ are recorded. In Perea, as Gilead was called in New Testament times, the Pharisees strove to entangle him by questions as to marriage and divorce, using the same tactics as their Judean brethren. There, too, occurred that sweetest of Bible stories, the blessing of the children. Not by accident did it take place in Gilead; but because the form of the land enabled a simple mountain folk of the Hebrew race to preserve their Jewish character.

In all our study of Palestine we have found ourselves ever turning toward Jerusalem. Let us start from there once more and proceed to Gilead and Bashan, thus putting those provinces in their proper relation to the central plateau. The distance from Jerusalem to Jebel Druze and the Leja on the far side of Bashan is only a hundred miles in a straight line, scarcely farther than from New York to Philadelphia. Yet in that short space the diversity of physical types is almost as great as in a distance of two or three thousand miles in the United States. Close to one another lie five distinct regions almost as diverse as the Allegheny plateau of western Pennsylvania, the hot valleys of southern Arizona, the anthracite coal region of eastern Pennsylvania, the prairies of Illinois, and the volcanic mountains of Idaho.

Leaving Jerusalem early in May on the way through Gilead and Bashan to Damascus and Pal-

myra, we traversed first the Judean plateau, high, breezy, barren, yet strangely attractive in spite of its treeless rocky hills, and stony terraced valleys. At a distance of a few miles from the plateau, in space, but half a continent in character, we crossed the superheated Jordan Valley, an infernal trench, whose parched bottom, muddy river, and copses of jungle infested with insects awaken chiefly the ardent desire to have done with the place. On May 9 the temperature at the ferry of Ed Damieh, twenty-four miles north of the Dead Sea and one hundred and fifty feet above it, was one hundred and five degrees at noon, and over one hundred till after four o'clock. So heated did we become that, after a climb of over four thousand feet, we actually felt chilly when we experienced a temperature of sixty-eight degrees toward sunset near Es Salt in Gilead. Beyond Jordan a fairer region is found. An elevation of three or four thousand feet above the sea suffices to render Gilead comparatively cool, and so moist as to support thin forests of oak. Gilead remains green and lovely far into the summer. Thus, more than any other part of Palestine, it resembles the fertile regions of western Europe and the eastern United States, especially eastern Pennsylvania, whose parallel ridges, flat topped and wooded, are of the same geological structure. In quiet homelike beauty Gilead far surpasses Judea, but it lacks the inspiring sense of openness and space, and the

frequent glimpses of the distant blue sea in the west, and of the purple plateaus in the east, which morning by morning and evening by evening give an ever-recurring charm to the sterile uplands around Jerusalem. North of Gilead one comes to the plain of Hauran, — Bashan, the land of Og, — a treeless expanse of waving wheat, flat as the prairie. Its fat, dark-red soil yields marvellous crops, but the scenery is deadeningly monotonous. The squalid villages of black lava, unrelieved by verdure, are as depressing a sight as one meets in many a year of travel. The plain of Hauran does not comprise the whole of Bashan. To the east rises another district, — the sombre volcanic mountains of Jebel Druze and the inhospitable rugged lava flow of the intractable Leja. The network of lines chosen by cartographers as the symbol of a lava field well represents the confused mixture of fertile patches of wheat and rough, naked masses of dark volcanic rock, over which last both man and beast must walk warily for fear of broken legs.

The American or European feels comparatively at home in Gilead because of its streams, springs, and woods, and its pastures where cows are knee-deep in grass. Yet some of the scenery has most unusual features. Northeast of Es Salt, we looked down a valley whose rocky sides were half covered with green fields of wheat and yellow patches of barley, while its lower end was closed by the

dark wooded mountains of Ajlun north of the Jabbok. A pink river ran at the bottom of the valley, a strip of vivid color curving gracefully around the green spurs of deeply entrenched meanders, sometimes in full view and again hidden by the deep sinuosities of the valley, a river of oleanders in full bloom completely concealing the waters of the stream that gave them life. Gilead has no real forests in our sense of the word, merely an open growth of oaks twenty or thirty feet high, with a few rising to fifty or sixty feet; but the trees are so closely set that after dodging the branches for half a day as one rides among the network of mountain ravines, one understands how Absalom met his death in the haste of flight. The trees are being rapidly cut off by charcoal-burners, — timid, harmless people, utterly ignorant of the outside world. The timidity of the present Gileadites illustrates one effect of the mountainous country, and of its aloofness from the main routes of traffic. One day we photographed a poor charcoal burner. He stood meekly beside his pile of smouldering fuel while his picture was taken. Then, though he was twice my age, he came trembling, and in native fashion gently put his arm around me, saying, "My father, do not hurt me, do not bewitch me with that shiny box."

Not far away in this same fair, secluded little country of Gilead we ascended to a hilltop where ruins and caves surround the half-fallen arch of an

ancient sanctuary. The place seemed uninhabited until we approached near enough to discover that rooms had been constructed among the ruins, and that many people were living in caves, —true troglodytes. No one suspected the camera of any harm here, until a wise troglodyte who had travelled full fifty miles to Jerusalem began to air his knowledge. It was pretty then to see a mere girl, who nevertheless was a mother, run with her baby to her own mother to find protection. She asked if it were true, as the men were saying, that if her photograph were taken her soul would be in the power of whoever might hold the picture. In spite of the shapeless gowns of dark blue and the ugly tattooing on the faces of the women, the scene was most graceful; for every woman walked like a queen. The protecting air of the mother and the appealing attitude of the daughter suggested Niobe and her child. Perhaps it was in some such village that Christ blessed the children.

On every side the heights of Gilead fall off to lower levels. On the west the descent to the Arabah is not so steep as the escarpments on either side of the Dead Sea, but closely resembles the warped border on the eastern side of Samaria, to which it is directly opposite. Southward the folds which give to Samaria and Gilead their peculiar topography gradually die out. The low hills of southern Gilead merge into the rolling plateau of Moab. The distinctive portion of Gilead is only

PRIMITIVE CAVE DWELLERS OF GILEAD

OAK FOREST AND CHARCOAL-BURNERS IN GILEAD

about forty miles long and twenty wide. On the south, however, no exact limit can be set. There Ammon, with its centre at Philadelphia, or Rabbath-Ammon, on the upper Jabbok where that stream curves southward, forms an intermediate region. More open to invasion than Moab, it is less secluded than Gilead. Eastward Gilead merges into the plain of the desert. Invaders from the desert, who have been the chief cause of the unsettled character of the regions east of Jordan, have always hesitated to enter Gilead. They are not so safe among its hills as in the open country to the east and south. They cannot flee so readily, and the inhabitants have far more opportunity to lie in ambush or to fortify inaccessible hills. Moreover Gilead, because it lies at an elevation of three thousand feet in many places and of over thirty-five hundred in parts, is high enough to have abundant rain. Hence its oak woods, one of its greatest protectors. The Arab may bring his camels among mountains, but he dare not attempt to use them among forests where branches jut out on every side. Thus it has come to pass that Gilead bears an important part in the history of Israel. If Samaria had stood high enough to prevent the rainy west winds from crossing the Jordan, or if the Appalachian structure had not extended on both sides of the Ghor, we should not have had the story of Jephthah in its present form, and the account of the blessing of

the children might have been lacking from the Gospels.

Northward Gilead breaks off sharply, nearly due east of the fault of Esdraelon. Apparently on this side of Jordan, as on the other, the region south of the fault was unlifted. Here, however, the uplift took the form of a warping rather than a breaking of the crust. Where the land falls away, trees disappear, and the hills give place to the broad plain of Hauran or Bashan. Over a large portion of it the limestone which constitutes so large a part of Palestine is covered with lava. The soil is consequently rich and retentive of moisture. Inasmuch as southern Galilee lies low, the winds from the Mediterranean sweep eastward almost unchecked. From the Jordan and the Sea of Galilee they rise considerably to the plateau. They descend again but little, for the volcanic mountains of Jebel Druze, six thousand feet high, rise just east of the Hauran. Hence the winds are forced to ascend once more, and all the plain of Bashan, the Hollow, or En Nukra, as the Arabs call it, is well watered.

Bashan is not sheltered as Gilead is. To be sure Hermon and Damascus protect it on the north, and the rough Leja and Jebel Druze on the east. The two latter, however, are in themselves a menace, for they are the natural retreat of plunderers. On the southeast the plain lies wholly open to invaders. From this direction the Israelites poured

in to conquer Og, the king of Bashan, at Edrei. On the west and also on the north Bashan is open to the world in another way. The great trade routes which have had such an effect upon Samaria pass across its open acres, and have had their normal influence. Along them poured the Greek culture which gave rise to the league of the Decapolis. The cities of the league were prosperous largely because located on the borders of these plains which form the richest granary of Syria.

The life of Bashan is wholly different from that of Gilead. On our arrival at Irbid, the first of the ugly treeless villages in the great plain of waving wheat east of the Sea of Galilee, the style in which we were entertained was more businesslike than in Judea, the Jordan Valley, or Gilead. We were led to a hideous guest-house made of alternate layers of white limestone and black basalt. Passing through a large courtyard, we entered a high-domed room, where a sheikh, who appeared to be the host, promptly seated himself on the plaster floor beside an open hearth of large stones in the middle of the room. Taking some coffee beans from a bag, he roasted and ground them, and then prepared coffee in long-beaked copper pots, for us and for all who might drop in to see the sights. Like the wild Beduin who had previously entertained us in Moab, he took much pride in exhibiting his skill in the use of the large

carved mortar and huge pestle, the wooden implements used for coffee-grinding. He clicked the pestle against the sides with surprising vigor, bringing it down with all sorts of rhythms and all degrees of strength, from the softest tap to a blow that shook the hearth and caused little clouds of dust to rise from between the stones.

In general one sunny, sombre lava village of Hauran differs little from another, but Dera'a, the ancient Edrei, is peculiar. It lies on a rocky point between a precipitous gully and the shallow canyon of a branch of the Yarmuk. Few places in the smooth plains of Bashan are so well protected by nature. Therefore Edrei was the capital of the country three thousand years ago, when the Israelite invaders defeated Og, and made his name forever famous. On our arrival there one glaring noon I strolled out to look at the walls of the tumble-down houses; for in the basalt blocks throughout Hauran one finds innumerable inscriptions, chiefly Greek, and all manner of pretty bits of carving from old temples and churches. As I passed the arch of an ancient church I was greeted by a middle-aged woman. She wore a wide-sleeved dress of dark blue cloth, cut in the regulation Mother Hubbard style and fastened loosely with a single button at the neck. Her head was wrapped in another dark blue cloth which covered her neck, and almost concealed the two stubby eagles' wings tattooed in dark

blue upon her chin. Her cheeks also bore tattooed figures, and an irregular diamond-shaped figure enclosed a circle in the centre of her forehead; while on the right side of her nose a tattooed spot took the place of the blue bead or little globe of silver worn by many women. She said something in Arabic, of which I understood only the word cave; but as the caves of Edrei are famous, I cordially assented. Thereupon she led me to a low wooden door cut in a rough wall of stones and capped by a slab of basalt from some old temple, finely carved with scrolls and with the egg-and-dart pattern. Beyond a littered courtyard, to which the door gave access, we stooped low to enter a dark mud room where several people were seated cross-legged in a circle on the floor. The only man present repeated the remark about the cave with much cordiality, and seemed to be urging me to come to see it, bringing with me an interpreter and especially a mejidieh (eighty cents), upon which latter point he laid much stress.

When we went to the house later in the day, the owner pointed out the entrance to the cave, and said: "There is the cave, but I dare not take you in. The place is full of underground streets and houses and shops, and one can go for miles and miles in them; but it won't do to go in because the caves are full of spirits who hate to be disturbed. The first time any one went in, a boy of

my family was killed by the spirits; the next time a girl died, and the one or two other times ill luck fell on the household. If we sacrifice a goat it will be all right; but I can't sacrifice one." We expressed our willingness to pay for a sacrifice, and asked if he had a goat to sell. Yes, he had, and he dived into a shed and yanked out a kid by the ears. He would sell us the goat and show us the cave for three mejidiehs.

"Go ahead and sacrifice it," we said, but he seemed in no hurry, and after pretending to get ready, remarked:—

"It is getting late now, and you have n't much time. The cave is very big. If you want to hurry I will just cut off the beast's ear and complete the sacrifice later."

We assented, spurred on, as she thought, by the wife's remark that the cave extended to Bosra, more than twenty miles away. So far as we knew, nothing happened to the goat except that we paid for him, and the family ate him when they were ready, which may not have been for months. There was a real offering, however, before any one was allowed to venture into the cave. Taking in her hands two sheets of bread and some onions, the wife ran out and gave them to the first person whom she happened to meet, — a camel-driver. Meanwhile the householder took off his outer robe of dark blue with light blue facing, and gave it to me to put on because the cave would be dirty.

He also advised us to take off our helmets and wrap our heads in handkerchiefs, which advice surprised us, because in other caves we had found the helmets excellent to protect our heads when we forgot ourselves and stood erect in low places.

When all was ready we were one by one let twirling down by a rope into a cistern where straw was stored. At the bottom the only opening was a hole two feet in diameter, through which we squeezed head first and found ourselves in a passage of about the same height. Lighting our candles, we went forward, sometimes on hands and knees and sometimes on our stomachs, like worms trailing over the damp mud of the cavern floor. We continually expected to reach a larger passageway, but never did, although occasionally the tunnel widened into a cave where one could stand and walk around. Three times we came to chambers large enough to furnish shelter to a score of people; again we traversed passages whose branches ended sometimes in blank walls of masonry, or in shafts leading up to the courtyards of houses in the village, or in dry cisterns which once furnished water to the people of the caves. We crawled for an hour and a half, and came out plastered with mud from head to foot. No one knows just when the caves were made, but their use is evident. They were places of refuge from the Arabs. Each house seems to have had a well communicating with the underground chambers.

At times of alarm the people and their chief valuables could promptly be hidden in the caves. The enemy might plunder or burn the houses, but no one would ever risk attacking the refugees in their dark burrows, where death might lurk at any corner. Other cave villages of the same sort probably exist in this region, for an inscription of Agrippa I, at Kanawat, thirty miles northeast of Edrei, has been interpreted as an exhortation to the people to give up the practice of living like wild beasts in caves.

Nomadic invaders from the desert are not the only people of whom the inhabitants of the plains now stand in dread. The volcanic mountains of Bashan, thirty miles east of Edrei, are inhabited by Druzes, who, as robbers, are often more dangerous than any Arabs. Finding themselves in too close contact with the government in their old home in Lebanon a few generations ago, some of the more turbulent migrated to Bashan. I asked our Circassian guide whether he would go with us among the Druzes. He answered, "No, they are our enemies. They would shoot me. But they 'd do it fairly. They 're men like the Circassians, not beasts like the Arabs. If they are going to shoot, they stand up in the open and give the other man a chance. And if they make a promise they keep it." At Edrei the Kaimakam, or lieutenant governor, looked serious when we spoke of Jebel Druze. Did we not know, he asked, that

the Druzes had recently killed an officer and several soldiers? Several companies of troops had been despatched through Edrei itself to quell the outlaws. The government at Damascus had turned back another party of Americans, and would probably do the same to us. What did we want to go for, anyhow? There was nothing to see in the Druze country, and nothing would happen except that we should be shot, which would make trouble for everybody. We told our plans, with the single exception of our purpose to get rid of any escort from the government before we went among the Druzes. The wild mountaineers hate the government but love the English; and Americans are classed as English. Finally the Kaimakam gave us a soldier to take us to Bosra, where the officer in command would decide whether we should be allowed to proceed.

Bosra was once one of the important cities of the East. It was called Little Damascus, and had its great colonnade, its theatre, castle, and temples, like Jerash and many other forgotten places. Now it is an extraordinarily dreary ruin, with the peculiarly unkempt, forsaken air which prevails among ruins where the stones consist of dark basalt. The modern village of two or three hundred houses is almost lost among the ruins which surround it on every side. We camped in a pleasant garden, and soon received a call from the civil and military officials of the town, all of whom

were young. They seemed in much doubt as to what to do with us. In the morning, after long consultation, they came to the decision that they could not possibly supply us with an escort,—news which we received with apparent regret but inward joy. When we expressed our intention of starting at once, they were surprised, and also much perplexed as to their duty, until I proposed to write a note exempting the government from all responsibility, whatever might befall us among the Druzes. Then the officials let us go, after a friendly hour of talk, with the dire warning that we would come back with bullets in our heads.

As we rode out among the tents of the troops who had just been brought to quell the Druzes, the matter began to seem serious. A soldier on foot led us through the fields to a ruined Roman guard-house. There he pointed out the long straight line of a Roman road running gently upward a dozen miles to the picturesque castle of Sulkhad, perched on the crater of an old volcano. As he turned back and we started our horses up the road, untrodden of late, it seemed indeed as if we were bound for the enemy's country.

It was a very peaceful enemy whom we found after an hour and a half: simple peasants in blue gowns, many-colored waistcoats, and graceful white turbans, which form a smooth band extending five inches above the head and coming down

in a pretty fold behind the neck and under the chin. They were ploughing the stony fields, among boundary stones which at a distance suggested men on guard. Behind the ploughs came boys who helped to drive the large black oxen, and with them rosy-faced women in blue skirts and colored waistcoats, looking far more attractive than most of the women of Syria. The size of the oxen and the unusual sight of other cattle grazing on the higher mountains reminded us of the "kine of Bashan," famed in Biblical days. Two or three hours more brought us to Sulkhad, where we were received like expected guests rather than enemies.

The Druzes are a proud, handsome people, whose bane is their proneness to quarrel and to take offence at the least affront. One can hardly fail to like them and to sympathize with them in spite of their faults. Two fathers brought their pretty children to amuse us. The favorite trick seemed to be to teach the little one to slap the hand held out to it, and then to make amends by kissing it and putting it to the forehead. The seriousness with which the children took the matter was very pretty. One little fellow would not kiss my hand, although he slapped it. The father did not strike the child, but carried him off and left him crying in disgrace. The next day the youngster of his own accord took my hand and kissed it. The incident was a good illustration of the loving

spirit which seems to prevail in the Druze families. In few places do people make more show of affection in the way of kissing; and kissing, at the present time, is a European rather than an oriental habit. Parents kiss their children repeatedly, and older brothers as well as sisters are seen carrying the little ones around and kissing them most lovingly. Men kiss one another when they meet, on one cheek or on both; and a niece may even kiss her uncle, although otherwise men and women do not kiss one another in public. Blue eyes and brown hair are common; and every traveller wonders how far these courteous, wayward mountaineers with their un-oriental habits are the descendants of the old Crusaders.

The manner in which they exterminate themselves is a great pity. Not only do they fight with the Fellahin of the plains, whom they are wont to plunder, and with the Turkish government, which they hate, and with the Arabs, who are their rivals, but also with one another. In 1907 the village of Sulkhad was the scene of a quarrel between two clans which had hitherto been living together. Thirty men were killed, and the defeated party was forced to move away and found a new village. In many ways the Druzes are much like the Highland Scotch three hundred years ago. Living among mountains that are hard to traverse, both in Jebel Druze and in the Lebanon, they preserve their independence and their own peculiar mode

of religion, and plunder their neighbors when they find opportunity. They are weary of the uncertainty of their life, and many of the older men wear an habitual expression of anxiety, as well they may, when they are in constant danger of ruin at the hands of the government. They appealed to us, as they always do to Englishmen, to use our influence to have England assume the government, little realizing how far such a step is from the bounds of probability.

We experienced not only the hospitality, but the rapacity of the Druzes. From the shady little theatre and other ruins of Kanawat, Mr. Graham and I had sent our horses ahead, and with the politic Abdullah were following them at a distance of a mile or more on foot. Suddenly from behind a great heap of rocks two Druzes appeared on horseback about thirty feet away. One of them covered each of us in turn with his rifle, and then kept it steadily aimed at me while he demanded our money. Naturally we laughed at him and refused to be robbed. My companions got their revolvers ready, but as I had none, all I could do was to tell Abdullah to say, "Go to, this is unseemly. Better put up your guns, or you 'll get into trouble." My companions both said afterward that they were ready to fire at the Druze who held the rifle the moment he shot me; but I could not quite see how that would have helped matters. However, the Druze looked down the

barrel for a minute and I up it. Then he put up his gun and the two rode off hastily, much frightened, it is to be hoped, by the pistol-shot which Abdullah discharged into the air after them. They probably thought we were unarmed, but for two men to attempt to hold up three was certainly a bold deed, quite in keeping with the Druze character.

North of the volcanic mountains of Jebel Druze lies the Leja, a great rough plain of lava. We climbed the chief of the craters from which the lava was poured out, El Gharara el Kubla, a huge ring of solid rock a mile in diameter. From its midst rises a beautiful symmetrical crater of slag and ashes a hundred and twenty-five feet high. Eastward at our feet, within a black wall far too large for the present shrunken town, lay Shubha, whose sombre houses, ancient columns, and ruined temples, all of lava, stand in strange contrast to a startlingly white modern shrine. Farther away to the northeast and east green fields stretch gently desertward, broken by old volcanic cones, some green to the top except for the black spot of a village, others black and sinister. Beyond them lay the brown line of the desert and a few dreamy blue mountains. Jebel Druze lay southward, a featureless mass of dark rock half covered with soil. To the right of the mountains, in the westward quarter, a patch of golden wheat-fields recalled the richness of Hauran. From this we

turned to the northwest, to a broad plain of lava, dark gray and sterile in many places, but broken by patches of grain as rich as those of Hauran. Close at hand the lava fell off in craggy, knotted masses looking as if stirred in some huge caldron and poured out in the act of hardening. Straight northward we looked down upon three other craters, a most unusual sight. They lie just far enough out of line to allow a good view of all three, one irregular and rocky close at hand, the next a perfect crater truncated smoothly on top and almost dainty in shape, and the third a cone of ashes whose western side has been blown out, leaving a hollow like the armchair of a giant.

Coming down from the crater, we rode across the strange Leja, among rough masses of dark-gray scoria almost concealed by splendid gray lichens splashed with brilliant orange, over huge rounded waves of deep blue lava smoothly rounded and often disclosing strange ropy foldings, and through fields of grain which were one-third heaps of rocks piled up by the unremitting toil of the generations of long ago. Here and there we saw dark ruins scarcely to be distinguished from the piling up of the natural rock, and twice we passed villages safely located in the most rugged parts of the lava among rolling waves of stone away from the smooth cultivated regions. The Leja is only imperfectly mapped, and the village where we were to meet the caravan proved to be six miles

farther than we had supposed. The sun dropped out of sight in a hot sky of pure gold, but no village was in sight. As soon as it grew dark we promptly lost the track amid a maze of rocks, and dared go no farther for fear of breaking the horses' legs or our own. The sound of frogs near at hand proclaimed the position of one of the scummy ponds which abound in the hollows during the spring, and thither we cautiously proceeded. When the horses' hoofs ceased to clatter, we could distinctly hear the distant braying of donkeys and bleating of lambs, punctuated by the sharp bark of a dog, but we dared not go onward in the darkness. There we stayed, hungry and uncomfortable, although actually within hearing of a village where food and rest could be found. Many another party of strangers with intents less peaceful than ours has doubtless been through the same experience. As we rode to the village in the light of dawn, we realized how the roughness of the Leja has always made it the haunt of men who live at variance with their neighbors, and why it has always been one of the hardest of all places to conquer.

## CHAPTER XII

### THE CLIMATE OF ANCIENT PALESTINE

Within historic times the geological structure and topographic form of Palestine cannot have changed appreciably. The climate, on the contrary, may have changed notably. The influence of the land upon history cannot be understood without a knowledge of whatever difference there may be between physical conditions in the past and present. Some writers hold that two or three thousand years ago the climate of Palestine differed from that of to-day. To this change, primarily, they ascribe the present poverty-stricken condition of the country. Others, with equal positiveness, declare that this is impossible. Nothing, they say, demands such an hypothesis: the decay of Palestine and of the neighboring countries is clearly due to human greed, misgovernment, and folly. Among those who have believed in changes of climate are Livingstone, who recorded his conclusions during an enforced halt on his last great journey in central Africa; Reclus, whose knowledge of the geography of the world as a whole has rarely, if ever, been surpassed; Fraas, Hull, Fischer, and others. On the contrary side may be ranged the names of Ankel, Conder, Hilderscheid,

and Wilson, all of them able thinkers. On the whole, the weight of authority, so far as numbers are concerned, lies with those who believe in changes. The majority of recent writers, however, incline to the contrary opinion.

The question of climatic changes in Palestine possesses a twofold importance. In the first place, it has a vital bearing upon Biblical history and interpretation. The accounts of the Exodus; the stories of the Assyrian conquests and of the commerce of Solomon; and the records of the intercourse of Egypt and Syria, and of the populousness and fertility of Palestine in the time of Christ, are all subject to very different interpretations according to whether we accept or reject the theory of climatic change. If the theory be rejected, a choice must be made between two horns of a dilemma. It is necessary either to accept the view of a certain school of critics who hold that the Biblical authors indulged in undue hyperbole; or else to believe, with the old-time theologians, that in the ancient days God interrupted the course of nature in favor of the Chosen People. If the theory be accepted, a large number of narratives which now seem improbable become reasonable.

The second reason for the importance of the study of the climate of ancient Palestine is that that country and the surrounding regions furnish perhaps the best of all keys to the climatic history

of the whole ancient world. The central position of Palestine, and the accuracy with which its history is known for three thousand years, make it a standard by which to test conclusions as to regions whose history is less well known, or whose climate is such that the effects of change are less apparent. Lying, as it does, on the border between the great desert tracts of Asia and the better-watered countries of the Mediterranean, its climate shares that of both regions. A slight change would have marked effects, especially upon —

> "the narrow strip of verdure strown
> Which just divides the desert from the sown."

It seems to be true, as a principle, that, in the regions occupied by the ancient empires of Eurasia and northern Africa, unfavorable changes of climate have been the cause of depopulation, war, migration, the overthrow of dynasties, and the decay of civilization; while favorable changes have made it possible for nations to expand, grow strong, and develop the arts and sciences. If this be true, Palestine and Syria ought to show evidence of it as plainly as any part of the world, provided the climate has changed. Their history should present a close correspondence between climatic fluctuations on the one hand, and economic, social, and political events on the other. Before the existence or non-existence of any such relation between climate and history can be proved,

it is necessary first to determine conclusively whether changes of climate have actually taken place; and then to ascertain the extent and nature of the changes and the times at which they have occurred.

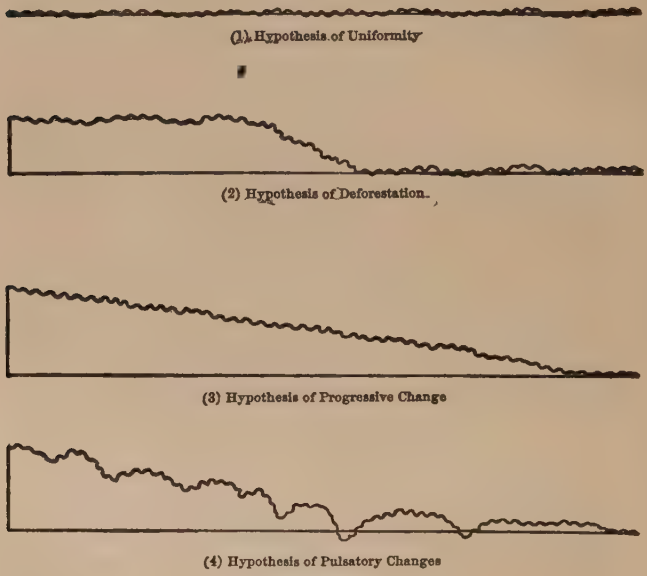

(1) Hypothesis of Uniformity
(2) Hypothesis of Deforestation
(3) Hypothesis of Progressive Change
(4) Hypothesis of Pulsatory Changes

FIGURE 3.

Climatic Hypotheses.

In the discussion of the climate of ancient Palestine four hypotheses may be advanced. They may be illustrated by the accompanying diagrams. The horizontal line in each case represents the course of time from the past to the present, the left-hand end denoting a period some

three thousand years ago near the beginning of well-known history. The height of the curves above or below the horizontal line indicates the departure of the climate at any given time from the climate of to-day. An upward curve represents increasing precipitation or falling temperature, or both; a downward curve indicates diminishing precipitation or rising temperature, or both. In other words, high points on the curves betoken relatively cool, damp conditions, and low points warm, dry conditions. The wavy character of the lines represents the fact that the climate of all parts of the world is subject to minor variations, sometimes a series of dry or warm years, and at others wet or cold years. These variations seem to fall in cycles, the best known of which is the 35- or 36-year cycle of Brückner. There are indications of other cycles having lengths of three, eleven, and three hundred years, but these are as yet open to some question.

The first diagram represents what may be called the uniformitarian hypothesis. According to it, during historic time there has been no marked alteration in the climate of Palestine or any other part of the world. The only changes have been those pertaining to the various cycles mentioned in the last paragraph. The climate of a given place may vary a little for a few years, but it always comes back to a certain norm. The changes of the historic past are like those of the present

with no essential difference either in kind or degree. The uniformitarian hypothesis is largely held by meteorologists. They know that the current idea that the climate of America or Europe has changed appreciably during the last few score years is without foundation. They see that the meteorological records of the past century present only the faintest indications of permanent changes in temperature, rainfall, and barometric pressure. Knowing how easy it is to make mistakes in the exposure and reading of instruments, they believe that the few indications of change which appear from the compilation of records are the result of error, as many of them undoubtedly are. Meteorologists are thus rendered sceptical as to all changes of climate, whether past or present.

The second diagram represents perhaps the commonest of all views as to the climate of Palestine. Many travellers go to the East, and see strong indications of an apparent change of climate. Having heard much as to the havoc wrought by the destruction of forests, and finding that where forests exist, rain is more abundant than elsewhere, they jump at the conclusion that the forests "draw" the rain. Certain authors, for example Anderlind, utterly ignore the possibility that the reverse is true, and that the greater abundance of rain causes the forests. The harmful results of deforestation upon the flow of rivers and upon the washing away of the soil cannot be

denied. The only question is whether so small a feature as a forest can appreciably affect the amount of rainfall. The many persons who hold this theory believe that Palestine was once well wooded and somewhat more rainy than it now is. Then the forests were cut off and the climate deteriorated to its present condition.

The exponents of the third hypothesis assume that a progressive change of climate has taken place. Usually they make no attempt to explain its cause, but merely point to a body of facts which apparently indicate a much greater abundance of water in the past than now. Since the time of Christ, they say, the fertility, habitability, and general prosperity of Palestine have declined to a greater degree than could possibly result from deforestation or from human negligence and folly. Geologists are especially prone to this view. They find unquestionable evidence that during the glacial period Palestine enjoyed a climate very different from that of to-day. The Dead Sea expanded so as to fill most of the Jordan Valley, as is proved by elevated strands; and glaciers existed upon Mount Lebanon, as appears from old moraines. In certain Syrian caves remains of prehistoric man are found associated with leaves of northern trees such as the oak and maple of central Europe, and with bones of animals whose habitat is far to the north. Therefore, the geologists are apt to assume that the change from the

climatic conditions of the glacial period to those of to-day has been gradual, and that it has lasted well down into historic times.

The last hypothesis, that of pulsatory changes, is an attempt to harmonize two groups of facts part of which agree with the uniformitarian hypothesis, and part with the hypothesis of progressive change. That is, some facts seem to indicate that conditions like those of to-day existed one or two thousand years ago; while other equally salient facts apparently point to greater rainfall or lower temperature in the past than in the present. The two sets of facts seem inexplicable except on the supposition that the climate of Palestine and other countries has been subject to fluctuations of considerable amplitude, although on the whole the tendency has been toward warmth and aridity.

In considering the present climate of Palestine we have seen that the location of the country in reference to the great climatic zones of the earth as a whole, and in reference to the Mediterranean Sea, in conjunction with the relief of the land, gives rise to peculiar conditions. The great extent of the land-mass of Asia and the high degree to which it becomes heated under the rays of the summer sun cause all the climatic zones to be strongly deflected northward. Palestine lies normally at the southern edge of the zone of prevailing westerly winds where rain is supplied more or

less abundantly by cyclonic storms of large dimensions moving for thousands of miles from west to east. During the summer, this zone is deflected so far to the north, that its place is taken by the rainless sub-tropical zone of dry descending air, or by a modified form of the trade-wind belt, where the winds blow prevailingly from a northeasterly quarter. In the case of the zone of descending air there is no rainfall, because, as the air comes down, it becomes warmer, and hence relatively drier, so that it absorbs moisture instead of giving it up. In the case of the modified trade-winds, air from the east has blown over the dry interior of Asia, and has had no opportunity to collect moisture. That from the north has had scarcely better opportunities than that from the east; and as it is also moving into warmer regions, where its capacity for holding moisture increases, it, of course, gives up no rain. Thus Palestine has a long dry season from April to October, and a rainy season during the other half of the year, as appears on page 34 in the diagram of the annual distribution of rainfall. Under the influence of the prevailing westerly winds of the winter a large portion of Palestine has quite as much precipitation as most parts of England or of the eastern United States. Unfortunately most of it comes in the form of rain and hence runs off faster than if it were snow. The long dry season renders irrigation advisable wherever possible, and indispensable in many

places. On the plateaus the porous nature of the limestone, and the small amount of level land prevent irrigation. Hence the inhabitants depend now, as always, upon "the rain of heaven." The people store it up in cisterns for the use of themselves and their cattle during the long dry summers, and trust the efficacy of prayer to supply a due amount for the crops in the late fall and early spring.

In considering our four climatic theories, it must not be supposed that the changes demanded are radical.

During historic times there has doubtless always been a wet, rainy season in winter, and a long dry season in summer. The most that is assumed is that the rainy season may have been somewhat longer and moister than at present, with a greater number of days upon which rain or snow fell; summer storms, now very rare, may have occurred fairly often; and the mean temperature of the year or of the winter may have been lower than is now the case. Such changes, even though slight, would have a great effect upon the habitability of the country. They would increase the productivity of the parts now cultivated, but their chief importance would be their effect in rendering agriculture certain instead of highly precarious in places like Beersheba or Ziza. Geologists and physicists who have made a special study of the glacial period have come to the con-

clusion that a diminution of from 6° to 10° C., or 11° to 18° F., in the mean temperature of Europe and America, provided it endured for a sufficient length of time, would suffice to cause a recurrence of glacial conditions such as those through which the earth has recently passed. It would cause the United States to be covered with ice down to Long Island and Cincinnati, and would make a large part of the rest of the country as uninhabitable as northern Canada. This being so, a change of 2° or 3° F. in the mean annual temperature of Palestine, with corresponding changes in precipitation and evaporation, would clearly have a marked effect upon the habitability of the country.

The most serious disadvantage in the climate of Palestine to-day is not lack of rain. From 1860 to 1906 the average precipitation at Jerusalem amounted to over twenty-six inches per year, about the same as that of moist London and more than that of Berlin or of the State of Minnesota. Practically all the rain, however, comes in the colder half of the year, when it is of little use for vegetation. Of the total amount of twenty-six inches, 25.5 inches falls during the six months from November to April inclusive, and 21.5 inches in the four months of December, January, February, and March. From May to October inclusive almost no rain falls, and April has but little. The seasonal distribution of rain in Palestine

much resembles that in central California, although the rainy season in the Asiatic country is somewhat shorter than in the American State. Santa Cruz, near Monterey, on the coast a little south of San Francisco, is one of the rainiest places in California outside of the high Sierran region. It had an annual precipitation of 26.8 inches from 1873 to 1903. Of this amount, 23.3 inches fell during the six months from November to April inclusive, as against 25.5 in Jerusalem, while 18.3 inches fell in the four months from December to March, as against 21.5 at Jerusalem. It thus appears that the rainfall of Jerusalem is much like that of Santa Cruz, although more concentrated during the winter months.

In Palestine, if the "former" and "latter" rains at either end of the rainy season do not come at the expected time or are not sufficiently heavy, the crops fail more or less completely. Hence, a slight lengthening of the rainy season would be of great value in giving assurance of moisture enough for at least moderate crops. If the winter temperature were lower, it would also be a great advantage. Where the winter precipitation takes the form of rain, much of the water runs off, and there is danger that the ground may not become completely soaked. If the precipitation takes the form of snow, this melts gradually and the ground becomes thoroughly saturated. The spring rains serve to keep the surface wet.

Thus, when the rainy season comes to an end, a large body of underground water is ready to support the growth of plants, especially of trees which require moisture late in the season, and to sustain the flow of springs and other sources of water for irrigation. It would, therefore, be a great advantage to Palestine if the winters were a few degrees colder, so that snow fell more abundantly and stayed longer than now, and if the rainy season were a little longer, so that there would be less danger of drought in the critical seasons of fall planting and spring growth.

In the following pages it must be borne in mind that no greater change than this is postulated. One writer compares the climate of ancient Palestine to that of England to-day. Such a comparison is misleading. It involves a complete change in the regimen of the seasons. If the climate of Palestine during historic times were ever different from what it is to-day, it probably resembled that which would now prevail along the Ægean coast of Asia Minor if the relief of the land and its relation to the sea were like those of Syria.

In the long discussion over the climate of Palestine many lines of evidence have been brought forward. Some are inconclusive, because of the impossibility of distinguishing between the work of man and that of nature, because human modes of expression are so variable, and because adja-

cent regions are so diverse. Ancient statements as to meteorological phenomena, or as to the fertility of the soil, belong to this class. So do data as to the kinds of plants growing in Palestine in the past and at present. In the future these lines of evidence will doubtless furnish many important facts. At present, research has only gone far enough to show that, while they are not positively inconsistent with the theory of climatic uniformity, they are more readily explicable on the theory of change, as may be seen by reference to the appendix. Leaving out the inconclusive lines of evidence, there remain five which make it possible to form some fair estimate of the validity of the four climatic hypotheses. These are: (1) the density of the population of Palestine at various periods; (2) the distribution of forests; (3) ancient migrations, trade routes, and lines of invasion; (4) the distribution, location, and water supply of abandoned ruins, and (5) the fluctuations of the Dead Sea.

One of the commonest arguments in favor of a change of climate is the former density of population. Taken by itself the argument is inconclusive. Combined with other lines of evidence it is important as will appear in the discussion of deforestation. In Deuteronomy the number of men able to bear arms who came into Palestine is said to have been 603,550, besides women and children. This would mean a total of between two

and three million. In David's time the population, according to the census which he took, is reported to have been between five and six million. Most authorities agree with Hilderscheid, one of the strongest opponents of the theory of climatic change, who says that although these figures may be regarded as "in oriental fashion greatly exaggerated, yet it cannot be doubted that the population of that time was much more numerous and dense than it has now become. Since this population lived almost exclusively by agriculture and cattle-raising, the soil of Palestine must have given much more sustenance than in our day, when it with difficulty supports about 600,000 people. That the productivity of the land has diminished notably since ancient times admits of no doubt; the question is, what causes have occasioned this diminution."

The fact of the diminution in the fertility and resources, and, consequently, in the population of Palestine is so patent and well known that it is unnecessary to dwell on it. Only two causes for this state of affairs have been seriously suggested, namely, changes of climate and human folly. Hilderscheid concludes his discussion of the subject thus: "We come to the conclusion that the present poor economic condition and sparse population are not due to an actual change in natural conditions, but that the sad state in which the land is found at present has been

brought about chiefly as the result of historic development. Certainly the hope may be cherished that by a fundamental change in the conditions occasioned by Turkish barbarism, the present barren and unproductive land may again in course of time be brought to a state of culture and prosperity." Many pages have been devoted to the discussion of the possibility of thus restoring Palestine. Most writers on the country have something to say about the matter. There is so much opportunity for reasonable diversity of opinion, however, that the discussion has hitherto been inconclusive, and must remain so, until we have examined other criteria by which it shall be possible to determine beyond question whether changes of climate have or have not occurred. If they have occurred, their influence must first be considered, and then the part played by human folly can be fairly estimated.

Among the believers in climatic change a large number attribute the supposed phenomenon to deforestation. They point to the frequent mention of forests in the Old Testament, a fact which certainly suggests a state of affairs different from that of to-day. For instance, when the Israelites entered Palestine they appear to have found the country well covered with forests which it was necessary to clear away before they could take possession of the land. In Joshua xvii, 14–18, we read that when the country was divided

among the twelve tribes, Ephraim and Manasseh received the central part of the country, the region later known as Samaria. The children of Ephraim and of Manasseh complained that the country allotted to them was not large enough. To this Joshua answered: "If thou be a great people, get thee up to the forest, and cut down for thyself there in the land of the Perizzites and of the Rephaim, since the hill-country of Ephraim is too narrow for thee." And the children of Joseph said: "The hill-country is not enough for us; and all the Canaanites that dwell in the land of the valley have chariots of iron, both they who are in Beth-shean and its towns, and they who are in the valley of Jezreel." And Joshua answered Ephraim and Manasseh, saying, "Thou art a great people, and hast great power; thou shalt not have one lot only; but the hill-country shall be thine; for though it is a forest, thou shalt cut it down." (*Revised Version.*)

It seems impossible to put any interpretation upon this passage except that when the Israelites invaded Palestine the lowlands were cleared, while the central highland was covered with an uninhabited forest, which the newcomers cleared just as the early American colonists, on a vastly larger scale, cleared what is now the eastern United States.

Authors such as Hilderscheid, Ankel, and Conder, however, who do not believe in changes of

climate, lay much stress on the fact that the three Hebrew words translated "wood" or "forest" do not necessarily mean exactly what we mean by those terms. Conder thus sets forth the meaning of the three words used in the Old Testament. The first, "choresh," "does not necessarily imply timber trees, but rather copse or underwood such as still exists." The second, "jash," usually translated "forest," "might be rendered 'wilderness,' according to the old use of the word. This may be compared with the more dense thickets of lentisk and dwarf-oak, with occasional scattered pines in the high ground, which clothe the western slopes of the hills. That the amount of this kind of growth has materially decreased and is still decreasing there is no doubt." The third word, "etz," applies to timber trees, but does not of necessity mean forest, as it is often used for solitary trees. Conder concludes that "the character of the wooded growth is unchanged. The districts covered by 'wood' [in the sense of thick copse apparently] have on the whole materially decreased."

What Conder and the others say about the various words used for forests is interesting and important, but it gives no clue to the nature of the growth which the invading Israelites were obliged to clear away. The same word may be used in very different senses at different times, or even at one time. We use the word "woods" for a growth

of giant trees a hundred feet high and also for a little grove of saplings twenty feet high. Writers on South America use the word "forest" in describing both the Amazon basin and the Gran Chaco farther south in Bolivia and northern Argentina. In the one case, the growth consists of magnificent trees growing so close together that their tops shut out all sunlight. In the other case, the country is covered with typical "savanna," where isolated trees occur in wide stretches of open scrub and grass.

Leaving now the question of the nature of the forests or scrub, as the case may be, which occupied the mountains at the time of Joshua, it appears fairly certain that in its day of greatness Palestine was not a wooded country. Hilderscheid and Ankel point out that if the population of the Holy Land was formerly much denser than now, it stands to reason that the opportunity for forests was slight, especially as practically all the people practised agriculture.[1] Whatever forests may have existed originally must have been largely cut off for local use. As Ankel puts it in reference to the land west of Jordan where the children of Joseph were urged by Joshua to cut off the trees: "For the nearly four thousand years of the historic past a diminution in the forests west of the Jordan is not proved. On the contrary, one can scarcely climb a mountain peak on which, among the wild bushes, one cannot find traces of old terraces for

the location of vineyards and fig gardens, or of grainfields; or where there are not winepresses hewn out of the solid rock, banks of stones built up for threshing-floors, primitive cisterns, etc., witnesses of the industry of the former race which knew how to make even the barren ground fruitful. When these works were carried out it is hard to say; but at all events it was at a time when what one in Syria calls 'forests' were restricted to narrower limits than now."

Since forests were of such limited occurrence in the time of the greatest prosperity of Palestine, they can scarcely have had much effect upon rainfall. It may be added that meteorologists find no ground for believing that forests, however useful they may be in other respects, ever have more than the slightest effect upon the amount of rain, equivalent perhaps to an additional elevation of the land to the extent of one or two hundred feet.

The works of ancient authors contain many accounts of routes of travel which were once much used, but are now abandoned for lack of water and pasture. One of the best known of such routes leads from Palestine to Egypt through the northern part of Sinai. Three thousand years ago it was one of the most important routes in the world. Caravans moved back and forth along it with facility. To go from Syria to Egypt on business at the time of the Jewish Patriarchs was a com-

mon matter. In later days an active commerce was carried on between Egypt, on the one hand, and Syria, Assyria, and Arabia, on the other, all of it passing easily across the peninsula of Sinai. Great armies followed the same route. We read again and again of how the Egyptians waged war in Syria. Alexander twice traversed the route between Palestine and Egypt with ease.

To-day all is changed. Practically no one, except the scientific European traveller and a few Beduin, ever crosses the desert from Palestine to Egypt. From a commercial point of view the route is well-nigh impossible. Water and grass are so scarce that a few caravans would consume all. If caravans like those of the palmy days of Assyria and Egypt should attempt the route, most of their animals would perish. Where the great armies of the ancients marched and counter-marched time and again, the little army of Napoleon in 1799 was almost ruined on the way from St. Jean d'Acre to the Pelusian mouth of the Nile. The Egyptians probably knew more than the French about methods of travel in dry regions. Nevertheless, it is highly improbable that they can have experienced any such difficulties as those of Napoleon's army. If they had, they scarcely would have made so many expeditions against Syria. Egypt could hardly have been so keenly interested in Syria, if the two lands had been separated by the deserts of to-day.

In this same region, three thousand years or more before the days of Napoleon, the Israelites are said to have wandered for forty years on their way from Egypt to the Promised Land. Their number, it will be remembered, is given in the Book of Numbers as over six hundred thousand warriors, besides women and children. The total thus amounts to between two and three million souls, together with all manner of flocks and beasts of burden. For years, so we are told, they wandered in Sinai, sometimes hungry and thirsty, but usually finding enough to eat and drink, both for themselves and their flocks. Time and again the migratory horde came into conflict with powerful tribes of aborigines, such as the Amalekites. According to the Biblical account, not only were the Israelites a vast horde, but the peninsula was well peopled. The number of permanent inhabitants must have far exceeded anything that is now possible. At present the total population amounts to only four or five thousand wretched Beduin. The neighboring regions of the Tih and Arabia Petræa, where once the Edomites and Amorites dwelt, are no better peopled. Always, as Fraas well says, the hungry Arabs are engaged in fights with one another for grazing grounds or for the scanty springs which alone make life possible. "In consequence of the visit of our caravan to the camping place of the Beduin" he tells us, in speaking of the expedition of the Duc de Luynes,

"the spring of Selaf was exhausted in three days. So the worthy Sheikh Nassar declared to us that dear as his guests were to him, yet before evening we must move our camp to some other place. His tribe already felt the lack of water. Now, in a land which becomes literally exhausted and eaten up through the invasion of only a thousand additional men, can Israel have halted for years?"

It may be admitted that many or even most of the details as to the wanderings of the Israelites are inaccurate, and that there is much exaggeration. It can scarcely be denied, however, that the story has an historical basis, and that a large body of people, the ancestors of the Jews, came out of the regions known as Sinai, the Tih, and Arabia Petræa and invaded the fertile land of Palestine. In the records handed down to us, the number of invaders may have been multiplied tenfold or twenty-fold, but it must have been large. The time of the wanderings may have been ten years or a hundred. All this is immaterial.

The essential fact is that a large body of nomads, starting from Egypt, traversed the Sinaitic peninsula and Arabia Petræa, and finally invaded Palestine. They suffered some hardships, but not a tithe of what any similar body of people would suffer now. They met a large number of inhabitants during the course of their journey, far more than would be met with to-day. The country was then much more densely populated than now, as

appears from the abundant ruins of cisterns, terraced fields, houses, villages, and cities upon which every traveller expatiates. All the circumstances are eminently consistent with the existence of more favorable natural conditions in the past than in the present. They are eminently inconsistent with the present conditions.

In this connection another point needs emphasis. The writers of the Biblical narrative and of other ancient documents lived near Sinai; they were familiar with it personally or from the accounts of contemporaries who had traversed the region on business or pleasure. They wrote for men who knew the places mentioned. Under such conditions they could not have falsified their accounts as some modern critics would have us believe. They must have described the country as they and their contemporaries knew it to be. Almost every modern traveller has much to say of the hardships of travel in Sinai, and of the impossibility of its supporting multitudes of people. The ancient writers say almost nothing of this. We can scarcely suppose that they were fools or knaves, and therefore we must believe that they described things approximately as they were.

The arguments which apply to Sinai apply with equal or greater force to the great Syrian desert. Livingstone speaks of the great armies which crossed the desert. They apparently did not follow the roundabout route through Palmyra or

Aleppo, as all modern caravans do. To-day any other line of march would entail the greatest suffering, but such does not seem to have been the case in the past. At the time of the captivities of Israel prisoners were many times carried to Babylonia, and the route which they followed was apparently across what is now the desert. On this point Livingstone makes an important comment. "The prophets," he says, "in telling all the woes and miseries of the captivities, never allude to suffering or perishing by thirst on the way. Had the route to Assyria been then as it is now, they could scarcely have avoided referring to the thirst on the way; but everything else is mentioned except that."

One of the most remarkable features of the commerce of the world during the Roman period and earlier was the great proportion of it conducted in regions where none now exists because the country is too dry. For instance, the trade of Arabia was highly important, although now it is practically nothing. In this connection we may note the peculiar fact that Ptolemy describes five rivers there, where now there is not one. Up to the end of the first century of the Christian era, the city of Petra was a great commercial emporium. "Petra," to quote the Encyclopædia Britannica, "was not only safe and well-watered; it lay close to the most important lines of trade. The modern pilgrim road from Damascus to

Mecca, which has taken the place of the old incense-route, passes indeed a little to the east by Ma'an. But to touch Petra involves no great detour even on this line, and in ancient times, when Gaza was the great terminus of the Arabian trade, Petra was the place where the Gaza road branched off from that to Bosra, Palmyra, and northern Syria. The route from Egypt to Damascus is also commanded by Petra, and from it, too, there went a great route direct through the desert to the head of the Persian Gulf. Thus Petra became a centre for all the main lines of overland trade between the East and the West, and it was not till the fall of the Nabatæan kingdom that Palmyra superseded it as the chief emporium of north Arabia."

It is needless to say that all these routes are today abandoned. The ancient road from Petra to the head of the Gulf of Akaba is marked by abundant ruins of towns and caravan-serais. Strabo says that in his day, when many Romans were numbered among the inhabitants of the prosperous city of Petra, a large mart called Leuce-Come was located on the east side of the Red Sea near its northern end. To this place, he says, "the camel-traders travel with ease and safety from Petra, and back again, with so large a body of men and camels as to differ in no respect from an army." At present the whole region is desert, and the only water is a few poor little springs.

Even more remarkable than the road southward from Petra is the one eastward across the Syrian desert to the head of the Persian Gulf. Today no caravan can possibly cross this desert waste seven or eight hundred miles wide. No explorer, even, appears to have made the journey. The distances from water to water are so great as absolutely to preclude the use of this route for commercial purposes. Yet in the past it is spoken of as a great line of trade. Beyond Ma'an, twenty miles east of Petra, the first inhabited spot is Jauf, two hundred and fifty miles distant in a straight line. The desert between Ma'an and Jauf is so waterless that the Arabs almost never traverse it except when bent on plunder. Mr. Douglass Carruthers, of the British Museum, in 1909, was the first European to visit the central part of this region, although Palgrave had been on the borders several years before. Some idea of the aridity of the district may be gathered from the conduct of an Arab camel dealer whom Mr. Carruthers met as he was taking some unloaded camels from Teima to Egypt. Rather than traverse the desert route to Ma'an, and so to Egypt, the Arab preferred to go a hundred miles farther, travelling westward to El Wij, and then up the coast to Akaba, at the head of the eastern arm of the Red Sea. The road to El Wij is mountainous and rough, and far more difficult than that to Ma'an, but it is better supplied with water. Another evidence

of the aridity of the region is found in the remark of an Arab whom I met at Jebel Druze. I asked him by what route he would travel to Jauf from Ma'an, and he replied: "I should not try to go straight across the desert, but should go north almost to Sulkhad, and then take the road through Kalat Ezrak." That is, rather than cross the dry stretch of two hundred and thirty miles by the direct route, he would make a detour to the north and travel three hundred and fifty miles.

In spite of the modern difficulties, there can be no doubt that the ancient accounts of a caravan road from Petra eastward are true; for both Palgrave and Carruthers found evidences of it. At Wokh, twenty-five miles east-northeast of Ma'an, a well and a ruined village, discovered by Palgrave, mark the first stage of the old trade route. To-day the village is utterly uninhabited. Thirty miles farther to the northeast, at a place called Khan Bayer, Mr. Carruthers was taken by his Arabs to two wells in the bed of a dry wadi tributary to Wadi Sirhan. There he was captured by a raiding party of Beduin, who brought to his attention the ruins of an ancient inn. The ruins are built of large blocks of cut stone, arranged in a square seventy or eighty feet on a side. Their size and the care with which the stones were hewn show that the place must have been of considerable importance.

The next watering place on the route to Jauf

is at Weisit, ninety-five miles distant; but Mr. Carruthers surmises that there must be another undiscovered well or ruined inn somewhere on this part of the ancient road. So far as is known, however, this part of the desert is waterless.

Beyond Weisit, the road follows the Wadi Sirhan; and wells are numerous as far as Jauf. Farther east, however, the route to the Persian Gulf appears to be waterless for a hundred miles at a stretch. Yet, long ago numerous caravans, carrying goods from the gulf to Egypt, passed this way with apparent ease. To-day the only travellers are occasional Arabs, bound post haste to Teima from Damascus, or else raiding parties like that which caused Mr. Carruthers to discover the ruins of Khan Bayer. Mr. Carruthers is convinced that the present scarcity of water, and absence of travel on this old road, and on others radiating from Petra, proves that there must have been a decrease in the water supply since the days of the Romans. Such a change cannot be due to the work of man, for human actions have little effect on the desert; nature, not man, appears to have caused the change.

Other routes present the same phenomenon, although in less striking fashion. For instance, formerly a great route ran eastward from Bosra, although here, too, from the point of view of commerce, the desert is now impassable. Even the northern route through Palmyra is to-day largely

abandoned, although it can still be used in favorable seasons. The abandonment of the various routes has proceeded from south to north, from the more desert to the less desert regions. Many reasons are assigned for the abandonment of the successive routes. For instance, the commerce of Petra is commonly said to have fallen off during the first century of the Christian era because of the establishment of a route from Myos Hormos on the Red Sea to Coptos on the Upper Nile. It is quite as probable that the new route was established because the routes converging at Petra were becoming so dry that caravans began to suffer.

The drier parts of Palestine, as well as its desert borders, contain scores of ruins of large cities totally uninhabited, or tenanted by a mere handful of peasants. The country around the ancient cities usually abounds in small ruins, which formerly were prosperous villages. Farther afield ancient terraces and walls indicate that the whole region was once thickly settled by an agricultural people. Petra, Philadelphia, Gerasa, Bosra, and Palmyra are among the best-known examples of cities whose glory has departed and whose sites are left desolate. All of these lie east of Palestine and Syria proper, on the edge of the desert. Petra is absolutely uninhabited. The other four are still occupied by a population not a tenth, or in some cases a hundredth, as great as that of the

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past. Jerash, the ancient Gerasa, and Amman, the former Philadelphia, are the most prosperous in modern times. As we approached Jerash on the way from Jerusalem to Damascus, it was a pleasure to see wagon roads over which oxcarts with two solid wheels were being driven by Circassian peasants, who here, as elsewhere, seem to have a passion for carts. At the invitation of the Turkish government the present Circassian inhabitants of Jerash have settled there at various times since 1883, to serve as a protection against plundering Arabs. Their village is surrounded by gardens full of splendid trees, fig, walnut, quince, plum, mulberry, and pomegranate, bordered by rows of tall poplars. The people themselves are pleasant and manly. The girl-wife of our host was a real Circassian beauty, who shielded but did not conceal her face in a gracefully folded white scarf. The whole combination was unusual. We had not seen a cart for two months; we had been tried almost beyond endurance by cowardly or deceitful servants; and beautiful Circassian women are as rare in Circassian villages as they are common in books.

The gardens of Jerash and the character of its people make it one of the pleasantest towns in Palestine. Yet a glance at the ruins or a look at the accompanying map shows that the present little town of twelve or fifteen hundred people is insignificant compared with the ancient city. The

map does the old town injustice. If the Roman city were mapped in the same way as the modern village, it would extend beyond the naumachia on the south, and farther than the wall on every side. When I asked the Circassians why they did not plant more gardens, they replied, "We have no more water." The town cannot grow much beyond its present size. Yet in the past it must have been many times as large. The southern of the two theatres is three hundred feet in diameter, and would easily seat six times the population of the present town.

The ruins of Jerash are its glory. No one can wander among them without being impressed by their size and beauty, and by their arid desolation contrasted with the luxuriance of the orchards in the small space for which the present water supply suffices. Think of a colonnaded street over half a mile long with almost six hundred limestone columns bearing finely carved capitals, and then add to the picture shorter cross streets similarly adorned. These were not in some great capital, but in an unimportant provincial town which bore about the same relation to the Roman Empire that Little Rock, Arkansas, bears to the United States, or Waterford to Great Britain. How we should boast if towns such as Augusta, Maine, possessed buildings like Trinity Church in Boston. Suppose that in Leavenworth, Kansas, three huge theatres were constructed of solid

limestone, and in addition a naumachia for water sports had seats for several thousand people surrounding a tank 500 feet long and 180 feet wide. The Stadium at Harvard and the open-air theatre at Berkeley, California, are famous in America, but at the beginning of the Christian era buildings of equal magnificence were almost a matter of course in the provincial towns of the Roman Empire. In eastern Syria, in the space of only three hundred miles, four cities, Palmyra, Baalbek, Damascus, and Petra, surpassed Jerash in grandeur, while a score of others were embellished with buildings of which our greatest cities would be proud.

In the days of Christ other parts of the country were equally prosperous. We have seen how ruins of thrifty towns extended far to the south of Beersheba in what is now a desert. En-Gedi is another example of the same kind. So, too, are the ruins around the Sea of Galilee, those of Petra, and the abandoned towns of Moab, of which Ziza may stand as the type. It would be easy to name others by the actual hundred. Travellers, both scientific and unscientific, are prone to say that if the present inhabitants would bestir themselves, if they would give up their lazy habits, and emulate their predecessors, and if they could be freed from the twofold curse of misgovernment on the one hand, and Beduin raids on the other, the whole country might be restored to its ancient state of

prosperity. They assume that natural conditions have not changed beyond remedy. The facts do not support such a conclusion. Nothing that man is yet able to do would enable the people of Beersheba, and still less of Aujeh, to raise good crops every year. The soil is unexceptional, the methods of agriculture, although not the best, are as good as have ever existed in this country. Rain is the missing element. The people of Ziza and Kastal showed a commendable degree of initiative and energy when they came to the ruins to settle. No amount of energy on their part could have raised a crop in 1909, and no amount of engineering skill could enable them to obtain water for irrigation except at a cost a hundred-fold too great. No Arab raids nor difficulties occasioned by the government have interfered with Beersheba and Ziza in recent times. If these are not enough, turn to Jerash. By universal consent few races excel the Circassians in industry and energy. For over a quarter of a century they have lived at Jerash, under special favor of the government, and with large exemptions from taxation. Yet what have they accomplished? If the population should increase sufficiently to fill only one of the theatres, many of the inhabitants would find themselves face to face with starvation. Irrigation is necessary to insure against famine in bad years, but no more water can be obtained. The supply appears to have decreased permanently.

## CHAPTER XIII

### THE OBSERVATIONS OF AN ARCHÆOLOGIST

The question of changes of climate touches many phases of life. It is of direct concern to the geologist, geographer, anthropologist, archæologist, historian, economist, and pathologist. Indirectly it is intimately related to a dozen other fields of study. Inasmuch as ruins are one of the chief lines of evidence as to past climatic conditions, the observations of an archæologist are of especial value. Professor H. C. Butler of Princeton knows eastern Syria thoroughly. Three expeditions to the desert borders of the country in 1899, 1904, and 1909 have given him an unrivalled knowledge of the region. His researches have convinced him that the physical conditions of Syria must have altered greatly since the early part of the Christian era. In his various writings he has mentioned the subject briefly, but has not set forth his views systematically, partly for lack of time, but chiefly because he has felt that the subject lies beyond the province of an archæologist. His interest in the matter is so deep, however, that he has voluntarily contributed the facts contained in this chapter. Intrinsically they are of the first importance; but their greatest signifi-

cance lies in the fact that Professor Butler approached the subject from the archæological standpoint, and that his views were formed without reference to those of any one else.

In the rest of the chapter it will be understood, that, in the absence of a direct statement to the contrary, the observations and opinions are those of Professor Butler.

The subject which naturally appeals first to an archæologist is architecture. Buildings dating from a period antecedent to the Christian era are rare in Syria, and may be left out of consideration. In North Syria, that is, north of Damascus, structures of all kinds depended upon wood from the first century to the beginning of the seventh, but not thereafter. East of Lebanon every house, large and small, and even the stables, employed large beams, as is shown by holes in the walls. Many edifices may have been built largely of wood, but these, of course, have entirely disappeared. Only the stone buildings remain, but even in these the architect sees clearly that beams were employed, some of them being twenty inches in diameter. This was true everywhere in North Syria, but especially among the mountains northwest of Palmyra. To-day the mountains are devoid of forests. The only trees are occasional figs, oaks, and olives, growing in cisterns or cellars, where soil has accumulated deeply and moisture is long retained. Buildings left unfinished at the

time of the Persian invasion in 610 A. D. show that wood was still in use at that time.

In South Syria, only two hundred miles from the wood-using region, another style of architecture was developed during the same period. No wood was employed in most buildings. A few temples, of pure Roman style, contained wooden beams, just as did those of the same type elsewhere. In private houses, on the contrary, doors, windows, and shutters, as well as beams, were actually made of stone, even in three-story buildings. Such great use of stone could have been possible only in a country abounding in rocks such as basalt, which breaks into blocks readily adaptable for use as beams or doors. The only use of timber was in important temples, for which it was probably imported from a distance. If wood had been as abundant in South Syria as in North, different styles of architecture would scarcely have evolved; for the inhabitants of both were alike in race and culture. Hence it appears that, although both parts of the country are now devoid of forests, trees must once have been abundant upon the mountains of the north.

In addition to the main conclusion, we may draw another from Professor Butler's facts. If there has been a change of climate, it has been equally great in both parts of Syria, North and South, as will appear later more fully. In the one case forests have disappeared, in the other they

never existed. Therefore while forests may have disappeared because of a change of climate, the change cannot have been due to deforestation.

The next point made by Professor Butler is the marked deterioration in agricultural conditions. Olive trees probably never existed in South Syria, because it was too warm. In the north, however, they must have been numerous everywhere, for ancient oil presses abound. To-day in the uninhabited eastern parts of North Syria, the only olive trees are those already mentioned, in old cisterns or cellars. South Syria, by reason of its comparatively level topography and the prevalence of volcanic rocks, still possesses great areas of highly fertile soil. Nevertheless, much of this is not utilized for lack of rain, although ruins testify to former extensive cultivation. In North Syria, among the limestone hills, the slopes were formerly terraced for orchards or fields. Some of the terraces were from ten to twenty-five feet high. Now they are broken; and most of the soil has been washed away to the lowlands. In the Orontes Valley a part has doubtless gone to fill the lakes which once were much larger, and apparently more numerous than now. Those at Apameia, Antioch, and Tell Nebi Minto, probably Kadesh, have been converted into marshes. In the regions now inhabited it is noticeable that, whereas in the past cultivation prevailed everywhere, now it is limited on the one hand to the tops of ridges

which are sufficiently flat to retain enough soil for the support of a few olive trees, and on the other, to basins where the soil is deep. The washing of soil from the hills, a most serious phenomenon in all parts of Syria, including Palestine, has a direct relation to changes of climate, as will appear more clearly in a later chapter.

The old accusation that the people of Syria are lazy and shiftless may be true, but it does not explain the absence of cultivation in the vicinity of unnumbered ruins. With commendable energy the Syrians endeavor to utilize every bit of land that will possibly raise crops. In many regions they plough and sow year after year, but obtain a remunerative return only occasionally. In bad years the peasants of the drier districts go to Aleppo or Damascus to get work after they find that the fields are not destined to yield a harvest that year. To the south of Hauran and in the northeastern part of Syria toward Aleppo and the Euphrates the traveller often comes across villages where the grain bins stand empty and the houses untenanted. If a villager happens to be at home, he says, "Oh, we live here years when there are harvests. Other years we go to the cities." Irrigation is out of the question in these places; such a thing has never existed, and has never been possible in most instances. In good years, however, the crops are splendid; and the peasants, having no sure means of livelihood, take their chances.

They stake their seed and labor on the possibility of a good crop, just as the prospector stakes his year's work on the chance of discovering a vein of good mineral. Naturally people dependent on such precarious means of sustenance are poor, unreliable, and thievish, — the worst of the inhabitants of Syria. Yet in the past these same regions were full of well-built cities inhabited by a rich people with a highly developed art.

The change in the physical conditions of Syria is illustrated by the rivers, as well as by architecture and agriculture. Syria abounds in dry stream-beds, large and small. The winter of 1904–05 was the wettest for decades; but, even then, scarcely a drop of water flowed in most of the channels in the interior of the country. Yet in the days of the Romans it was deemed necessary to build bridges to span these dry streams. For example, at Burak, forty or fifty miles south of Bosra, a sturdy bridge stretches its arches across a channel of gravel. Farther east in the desert the branches of the Wadi Butm and Wadi Rajil, lying south of Jebel Hauran at a distance of about twenty miles from Sulkhad, are always dry. Yet three Roman bridges were built there. In North Syria a bridge spans the dry bed of the Dahna, thirty miles northeast of Homs. Under present conditions so sane a people as the Romans would scarcely build bridges in such locations.

More conclusive than the bridges over dry

ground are the spring-houses where no springs exist. Professor Butler mentions three. One is at Dahna near the bridge last mentioned. Another stands among lava at Saleh on the east slope of Jebel Hauran, and a third, two or three miles southwest of Kanawat in the volcanic mountains between that place and Suweida.

Bathing establishments are quite as dependent upon water as are rivers and springs. Large public baths were a notable feature of Roman civilization, and are still important in many eastern lands. In Syria they are scattered from north to south, and from the desert to the coast. Many are now waterless. One of the most remote is the "Hamam" or "Bath" es Serakh in the desert, fifty miles south by east of Bosra and thirty miles east of the caravan route to Mecca. It does not lie near a town or any ruins of a town. Three quarters of a mile away on the hilltop stand the remains of a fine mosque and of a Roman castle which was later used by the Byzantines and by the troops of the Ommiad Caliphs. The bath was evidently designed for the use of the soldiers of the castle. In its present form it was built by the Ommiades in the eighth century. It is located at the junction of strata of limestone and basalt, where a spring would appear if the rainfall were sufficient. To-day the place is absolutely dry. Even in the unusually moist season of 1904–05 the great well, a hundred feet deep and

eight feet in diameter, was merely a waterless hole yawning among the bones of dead beasts in a dreary expanse strown with flints.

Proceeding north, and omitting minor baths, the next of importance is at Bosra. It is not one establishment, but three, all with huge tanks, and with arrangements for hot and cold water. Two conduits are preserved, at least a foot wide. The location of the Bosra baths is significant; they lie in the upper part of the town, many feet higher than the modern spring which furnishes the only unfailing source of water. They must have been supplied from springs which have now disappeared. The baths are older than the one at Serakh, for they date from the second century after Christ. The dates are important, as will appear when we attempt to decide between the theories of progressive and pulsatory changes of climate.

Jebel Druze and the Leja contain many ruined baths in addition to the one at Bosra. For instance, at Sheba, on the southern edge of the Leja, Philip, the Arab Emperor of Rome, built a beautiful bath about 245 A. D. At present the only water there is a pool filled by the rain. The finest bath of all is at Sha'ara, at the north end of the rough volcanic flows of the Leja. Its date is not known, but it was evidently built in Roman times, early in our era. Here, too, no sign of running water now appears. Another interesting bath is located south of the two last mentioned, at Si'a near Kanawat.

It lies high on the hills above a Herodian temple whose carved grapevines and other arboreal representations cut in stone are supposed to make it resemble the Temple at Jerusalem more closely than does any other structure whose ruins are known. The bath has many conduits, four inches in diameter. The source of the water is unknown; but the problem of its origin is not so difficult as in the other cases, for mountains rise high not far away.

The Syrian baths fall into three groups of different age. At Serakh in the south the bath dates from the Mohammedan days of the eighth century. In the Leja and Jebel Druze, including Bosra, all of which places are in South Syria, the baths were built during the Roman rule of the first two or three centuries. In North Syria between Damascus and Aleppo, another group belongs to the period of the fifth and sixth centuries, when Christianity was dominant. The bathing establishments of the north occur both in the limestone mountains to the west of the main caravan road and the rolling basaltic country to the east. Among those to the west may be mentioned Sergilla, Babiska, El Bara, and Mijleya. Others, too ruined for recognition, doubtless exist. All are to-day waterless. East of the road, in a desert plain of fine soil some forty or fifty miles wide, lie the notable ruins of Ilandarin, about fifty miles northwest of Homs. To-day no village exists there. The

nearest water is found at a well two hours to the west. Yet once Ilandarin was a large city, walled, and containing at least ten churches, whose ruins are still visible. At one end of the town stood a great reservoir, and a mile away at the other some barracks. Between the two a large bath was located higher than the reservoir. It must have received its water from some other source, now utterly lost. On the bath the donor carved an inscription: "This bath I, Thomas, acting again for the sake of all, have given to all property holders, presenting this remembrance. What is the name of the bath? Health. Through this entering, Christ hath opened for us the bath of healing." No date is given, but in 559 A. D., according to another inscription, this same Thomas presented barracks to Ilandarin. The city proper covered an area about three fifths of a mile long by a third of a mile wide. The surrounding area is thickly strown with ruins, so that the whole city was about a mile square. At the lowest estimate the population must have been twenty thousand, and it may have been nearly one hundred thousand. To-day the nearest water is a well six miles away!

In order to show the wide distribution and abundance of phenomena like those of Ilandarin, Professor Butler calls attention to the condition of three ruined sites in South Syria. Bosra, to which frequent reference has been made, lies over a hundred and fifty miles south of Ilandarin. The

CARRYING HOME THE BARLEY HARVEST NEAR DAMASCUS

FIFTH-CENTURY CHURCH AT HAWARIN, MADE FROM THE RUINS OF ANCIENT TEMPLES

walled area of the ancient city was nearly four thousand feet long by three thousand wide. Houses extended much beyond these limits, so that the total area was fully a mile square. The present disconsolate village has an area of only about twelve hundred by seven hundred and fifty feet. In other words, the present village has an area less than one eighth as great as that within the ancient walls, and a twenty-fifth as great as that of the whole ancient city. The modern population, including those who come in to be near water in the dry season, numbers in the neighborhood of fifteen hundred, certainly not over two thousand, or from sixty to ninety per acre. At the same rate of density the ancient city must have had from thirty-five thousand to fifty-five thousand inhabitants. Probably it had more, for cities are usually more densely populated than villages. The hippodrome alone, with a length of approximately fourteen hundred and fifty feet and a width of about four hundred and thirty feet, had a seating capacity of fully twenty-five thousand. The theatre, two hundred and fifty feet in diameter, could seat eight or nine thousand people on its thirty-five banks of seats. The modern water supply would be utterly inadequate for the busy, prosperous city of ancient times. Most years the whole town now drinks from a single spring, although in favorable seasons another bubbles up in the naumachia.

To the south of Bosra the ruins of Um ed Jemal occupy an area of about two thousand three hundred by one thousand six hundred feet inside the walls. If the inhabitants were distributed with the same density as those of modern villages, they must have numbered from five thousand to seven thousand within the walls, and several thousand outside. Even in the moist year 1904 the wells among the ruins were dry, although, for a few months, water stood in pools on the surface. In the dry spring of 1909 the nearest water was twenty miles away. Agriculture is of course impossible here. Yet, in the past, the wealth of the cultivated lands roundabout must have been the mainstay of the town.

The town of Amman, fifty miles southwest of Bosra, has already been referred to. It is the ancient Philadelphia, and lies in Ammon between Moab and Gilead, upon the line of the Mecca railroad. For the past twenty-five or thirty years the town has flourished under the best of conditions, so far as man is concerned. The inhabitants are Circassians, whose industry and energy are as great in Amman as in Jerash or elsewhere. All of them, on first settling, were allowed ten years' exemption from taxes. Even now the officials dare not make such exactions as they make upon the poor Fellahin, for the fiery Circassians would become unpleasantly resentful. During the past decade the place has experienced the

boom which commonly accompanies railroad building. Almost from the first coming of the Circassian, Amman has been well protected against the raids of Arabs. Therefore it has had an opportunity to grow to its maximum size; but the size is strictly limited by the water supply. The entire population depends upon a single spring, which wells up in a pool forty or fifty feet in diameter, and upon a wadi which contains a flowing stream except in the dry season. These sources of water, like those of Jerash, irrigate gardens which form the main source of livelihood of the inhabitants. Now that the workmen on the railway are gone, the population does not exceed two thousand, and is probably less. The old town, dating from the early part of the Christian era, covers seven times as much space as the modern one. Its theatre, nearly three hundred feet in diameter, was constructed with forty-five rows of seats, and held twelve thousand people.

The facts cited by Professor Butler present so strong a case that I shall omit the description of many other ruins presenting the same phenomena. One point, however, deserves further emphasis. As Professor Butler points out, the ancient baths are particularly important. They were pure luxuries. They demanded a large and constant supply of running water. They wasted the water at a rate most extravagant unless conditions were entirely different from those of to-day. Thomas,

of Ilandarin, would never have presented his bath to the city, unless the twenty thousand or more inhabitants had been provided with plenty of water for household uses, and some had been running to waste. The present scarcity of water is sometimes explained on the assumption that underground sources may have changed their course, leaving the old towns dry. The universality of the phenomena of desiccation precludes such a view. If the water of Ilandarin, for example, were as abundant now as formerly, it would inevitably reach the surface in some part of the large plain. It does not do so. The only possible conclusion seems to be that the amount of moisture supplied by rain has much diminished.

The contrast between dry years and moist years in arid regions is extraordinary. To one who has not seen it, or to one who has seen only the irrigated portions of such regions, the difference in the amount of desert vegetation from year to year is almost incredible. Professor Butler's three journeys in eastern Syria well illustrate the matter. In North Syria the autumn of 1899 was drier than usual, but in December rain fell so heavily that the Princeton party, with Professor Butler at its head, was obliged to give up field-work. On the march of eighteen days from Birejik on the Euphrates through Homs to Tripoli, and then down the Syrian coast to Beirut, rain fell daily. At the Dog River the excep-

tional floods carried away the railroad and wagon bridges, but not the Roman bridge. The rest of the winter was rainy. In the spring the grass within some of the uninhabited ruins of North Syria was waist high. Before pictures of several walls could be taken, the vegetation had to be threshed down. Nevertheless on the hills, and in all places except enclosed courtyards or other protected spots with deep soil, vegetation was limited to a sparse growth of grass in small wisps and to a few rare bits of scrub. In April, on a new route through the formerly inhabited country between Aleppo and Palmyra, the desert was perfectly dry. Thirty camels were required to carry water. One well, on which the guide counted, was dry. He had been there in 1888, after a series of good years, and had found water. Both in North Syria and in South Syria, however, especially in the Hauran, the crops were excellent. Rain fell so late in the season that in early May on the way from Damascus to the Leja the pack animals were mired. In the deep volcanic soil of the Leja weeds grew riotously. The people welcomed Professor Butler joyfully, saying, "You have brought us good crops." In a word, so far as the districts now under cultivation were concerned, the season of 1899–1900 was decidedly propitious, yet it was not sufficiently rainy to rehabilitate all of the regions which once were inhabited.

The years from 1899 to 1904 were on the whole

prosperous. The season of 1904–05 was uncommonly rainy. From the middle of September for nine months until the middle of June water was abundant everywhere, even far out in the desert. The Princeton party of that winter never carried water, and used no camels for transport, nothing but horses and mules. They went out into the barren Harra, or volcanic tract forty miles east of Jebel Hauran, and found water in old cisterns and wells, and even in lakes. The great Arab tribes of the desert did not move in toward the cultivated areas, as they commonly do in the dry season. The Beduin of the Hauran and Belka, which is the modern name of the rolling plains of Moab, also remained farther to the east than usual, well beyond the limits of cultivation. Every lamb lived. The goats were full of milk. The Arabs were widely scattered because water and grass were abundant everywhere, and there was no object in crowding together at a few permanent wells. Every one was busy with the flocks and herds, and happy in the abundance of food. The temptation to raid and plunder was removed. No raids of any importance took place that year. The only disturbances of the peace were a few quarrels because the number of sheep was so great, and a fight between the Beduin, who feed the sheep of the Druzes, and the people of the Belka, or plains of Moab.

Snow, as well as rain, was uncommonly abun-

dant in the winter of 1904–05. On December 2 two feet of snow fell at Tarba at an elevation of 4500 feet on the east side of Jebel Hauran where Professor Butler was working. It covered all of Jebel Hauran, but not the surrounding low country. On Christmas Day three feet of snow fell at Mellah is Serrar, on the east of Jebel Hauran, and remained for weeks. It extended south from the mountains and covered the plateau. South of Um ed Jemal, at the end of January, it was so deep as to prevent the horses of the Princeton Expedition from grazing.

In North Syria the conditions were like those of South Syria. Little rain fell in March, April, and May, 1905, but the country was full of water from the snow of the three preceding months. Among the ruins where the herbage was so rank in 1900, conditions similar to those of that year prevailed. Then, however, the cisterns were empty, and grass was scarce. Now, after a series of comparatively propitious years, the cisterns were full, and the grass was everywhere so abundant that Turkoman nomads moved in, with goats, horses, and other animals. All the livestock grew fat. People from Aleppo sent out horses to pasture. The desert had become a most delightful country. Water and herbage did not fail even in the summer. On the mountains of Jebel el A'alla, east of the Orontes River, showers continued to fall in June, and the ground was so

wet that the animals of the Princeton caravan were mired.

We have already seen that the conditions of the spring of 1909 were very different from those of preceding years. In the region south of Um ed Jemal, that is, forty or fifty miles south of Bosra, where the snow prevented the horses from grazing in 1905, the cisterns remained full for months during the succeeding season. In 1909, in the same region, Professor Butler found no water whatever in most places. Even the railroad stations were waterless. At Samrah Station it was necessary to send two hours to the west for water. At Il Fedan Station the nearest supply was at Nasib Station, five hours to the north, due west of Bosra. There the Wadi Zedi contained running water from the snows of Jebel Hauran, but the rainfall had been too scanty to fill the cisterns. The villagers were drawing water from the wadi in March and April, and carrying it up to the cisterns for summer use.

Because of the drought the great tribes from the interior swarmed over the grainfields of Hauran. Not far from where the horses pawed the snow in 1905, the Princeton party in March, 1909, camped at a place called Koseir el Halabat. In scouring the country roundabout for a chance pool of drinking water for the thirsty horses, Professor Butler's men noticed hundreds of storks and cranes flying toward a certain spot. There

they found a pool of clear water, about two hundred feet long, twenty wide, and three deep. The next day at about half-past eight in the morning, one of the great desert tribes came streaming in from the southeast. Thousands and thousands of camels passed by. Far as the eye could see they stretched away into the wilderness. Scattered at intervals of one or two hundred feet they stalked by, hundreds abreast, bending their sinuous necks and sticking out their tongues to crop a bit of dry bush from ground which looked absolutely barren. For fully nine hours, till half-past four, the monster procession continued to pass. When the horses of the archæologists were taken to the pool that night, nothing remained except a muddy hollow, trampled by the feet of ten thousand camels. The beasts passed on toward Gilead and Galilee. Passing through southern Hauran, they ate the grainfields to dust, even as they had drunk the pool to slimy mud. The poor villagers shot at the Arabs, and then ran to their villages for shelter, much as the people of old Edrei probably did when they took refuge in their caves and passageways. Soldiers were sent to stop the Arabs, but in vain. Most of the grain eaten by the camels would not have ripened in any case, but the people were planning to cut it for fodder. In the higher regions where the crops ripen later, the rains which we experienced at Beersheba in the latter half of April came in time to save the wheat. The same

was true in the moister parts of the Hauran, but in the drier districts the drought and the Arabs vied with one another in preparing the way for famine.

All over Syria conditions were the same. The quarrels between Arabs and Fellahin on the borders of Judea, the large number of gunshot cases in the hospital at Hebron, the raids which we experienced beside the Dead Sea and in Moab were all due largely to the drought. East of Jebel Hauran and of Damascus, in regions which Professor Butler traversed with ease in 1905, neither love nor money would persuade any one to accompany me as guide. Every one was in mortal terror of the raids of the great tribes, which had been forced in by the drought. Farther south, when I tried to go east from Ziza, I was told that the whole country was unoccupied for lack of water. Far to the north, on the way to Palmyra, we found the Arabs rampant everywhere. If a single year of drought can create such sad conditions, what would be the effect of a permanent change from conditions such as prevailed in 1905 to those of 1909?

## CHAPTER XIV

### THE FLUCTUATIONS OF THE DEAD SEA

THE former population of Palestine, the distribution of forests, the routes of ancient traffic, and the location of ruins all point to one conclusion. A change appears to have taken place in the climate of Palestine. Of the four climatic hypotheses illustrated on page 252, those of uniformity and deforestation seem to be excluded. We are left to choose between those of progressive and pulsatory changes. Before attempting to decide between the two, let us examine the history of the Dead Sea. Such a lake, having no outlet, serves as an enormous rain gauge. Inasmuch as the waters of the Jordan, Yarmuk, Jabbok, Arnon, and other chief feeders of the sea have never been employed for irrigation, the rise and fall of the lake is controlled entirely by natural causes. Hence we may use the Dead Sea as a measuring-rod by which first to test the conclusions derived from other lines of evidence, and then to decide between the two theories still before us.

All students of the Dead Sea agree that its level has fluctuated greatly in past times, and that it fluctuates somewhat to-day. The past fluctuations are recorded in a series of old strands; the

present are a matter of actual observation. The question for us to solve is whether any of the old strands date from historic times. The strands fall into two classes, major and minor. The major lie two hundred and fifty or more feet above the present level of the water, the minor at lesser altitudes. The elevations of the major strands above the present level of the Dead Sea are approximately as follows: 1430, 540, 430, 300, and 250 feet. Further study may alter these figures somewhat, but that will not affect the conclusions to be drawn from them. At its greatest extent the sea stretched at least thirty miles south of its present termination. Northward it probably covered the Sea of Galilee and the Waters of Merom, and sent an arm into the Vale of Jezreel. This is not proved, however, for no deposits of the Dead Sea appear to have been recognized at high levels either around the Sea of Galilee or in the Vale of Jezreel. In the Jordan Valley, just south of the Sea of Galilee, they abound. Five miles down the Jordan from the lake, or about one mile north of Jisr el Mujamia, as the modern railroad bridge is called, a tilted series of dark clays, apparently lacustrine, lies under untilted whitish clays, also apparently lacustrine. The elevation here is about eight hundred and forty feet below the Mediterranean Sea, or four hundred and fifty above the Dead Sea. Possibly the older clays were deposited when the lake stood at the fourteen-hundred-and-thirty-foot level, and

the younger ones when it stood at five hundred and forty feet. If this is so, the northern part of the Ghor must have suffered movement since the time when the water expanded most widely. Further study of this matter will probably explain why deposits of the Dead Sea have not been recognized at high levels above the Sea of Galilee and in the Vale of Jezreel.

For our present purposes the northern portion of the Ghor may be ignored. In the neighborhood of the modern Dead Sea no great movement seems to have affected the earth's crust since the time of the fourteen-hundred-and-thirty-foot expansion, as is evident from the fact that, so far as can be detected by aneroid, the highest deposits lie at approximately the same elevation on all sides of the lake. Hence we may study the strands without reference to crustal movements. This being so, the cliffs and benches and beaches formed by the lake at various times clearly indicate a great decrease in area and in the amount of water supplied by the rivers. There is no reason to believe that any important tributaries have been diverted from the lake. Hence the change must be climatic. The oldest strand, by common consent, represents the conditions prevalent during the glacial period. The other strands in all probability date from the stages of glacial retreat, well known in Europe. The advance of the ice in Europe and North America was due to the preva-

lence of climatic conditions much moister or colder than those of to-day. Non-glaciated regions were likewise subjected to a more rigorous climate. In Palestine the rainfall was so great or the evaporation so slight that the Dead Sea expanded enormously. The change from the extreme climatic conditions of the last glacial epoch to those of the present post-glacial or possibly inter-glacial epoch did not progress uniformly. On the contrary it was interrupted by the post-glacial stages already referred to. At each stage the climate for a time ceased to become warmer and drier, and probably changed somewhat in the opposite direction. Accordingly the glaciers of northern lands not only ceased to melt away, but advanced. At the same time lakes like the Dead Sea ceased to contract, and expanded a little, or at least remained at the same level. At such periods the strands at elevations of five hundred and forty, four hundred and thirty, three hundred, and two hundred and fifty feet were formed on the shores of the Dead Sea.

As indicators of the lapse of time from stage to stage, the phenomena of the post-glacial moraines of Europe agree with the amount of weathering upon the bluffs and beaches of the various strands of the Dead Sea. All point to the conclusion that the interval from the height of the last glacial epoch to the height of the first post-glacial stage was greater than from the first stage to the second. The next interval, from the second stage to

the third, appears to have been, if anything, still shorter, and so on. For the sake of argument, however, let us suppose that the intervals have all been equal. In that case we may divide post-glacial time into five portions of equal length. The lapse of time since the culmination of the last glacial epoch is estimated by some geologists at fifty or sixty thousand years, while others bring the figures down to ten thousand. The average of the various estimates amounts to twenty-five or thirty thousand. If we divide post-glacial time into five equal parts, we get results varying from two to twelve thousand years, with five or six as the average of the best determinations. This would represent the age of the two-hundred-and-fifty-foot strand, were it not that the intervals from stage to stage have decreased in length. To put the age of the two-hundred-and-fifty-foot strand at not more than five or six thousand years is therefore conservative. This places it close to the dawn of history. It may, of course, be younger.

The significance of the dates just given becomes apparent from a study of the minor strands. They are of the same type as the others, but smaller and more recent. They can be detected on all sides of the sea, but are especially notable near the Tombs of the Kings south of Jericho. On the whole they diminish in size from the older to the younger. They have been strangely neg-

lected by students of geology and geography. So far as I can ascertain, Dr. Masterman, a physician of Jerusalem, is the only author who has paid much attention to them. In connection with valuable observations upon the present fluctuations of the Dead Sea, he has examined some of the lower strands. From the observations of early travellers he infers that within the last century the level of the sea has varied nearly twenty feet. His final conclusion is that "it is highly probable that if such a change can occur during so short a time, these beaches may mark old sea-levels within historic times."

Stimulated by Dr. Masterman's observations, I investigated the minor strands as carefully as time allowed, and made a series of soundings to ascertain the topography of the floor of the sea. As a result, I discovered strands at the following levels: 210, 170, 145, 115, 90, 70, 55, 40, 30, and 12 feet above the level of the water in March, 1909. The 30-foot strand is doubtful. All the figures are in the nature of generalizations, for a single elevation may represent several little strands. For example, measurements with a hand level gave the altitude of the beaches at one place near the northeast corner of the sea as 38, 43, and 46 feet, and at another as 43. Aneroid determinations elsewhere gave 41 and 44 feet. These have been grouped as the 40-foot beach. Similarly the altitude of the 70-foot beach is deduced

STRANDS OF THE DEAD SEA, LOOKING NORTH FROM WADI ZERKA MA'IN

from nine observations ranging from 65 to 79 feet. Apparently the sea has always been subject to small fluctuations like those of the present day. During the past century the fluctuation has been at least twelve feet. Beaches just above the present water line indicate that not many decades ago the sea may have stood three or four feet above the level at which we saw it. Dead palms and tamarisks standing in the water prove that in the seventies the level was at least eight feet lower than now, for trees could never take root in the bitter brine.

The amount of erosion of the lower beaches is far less than of the upper. The lower, as Dr. Masterman says, cannot be of great age, or they would have suffered much more change than they show. Moreover the upper strands are more pronounced than the lower, and must have required a correspondingly long period of formation. To produce them the sea must have stood at the various levels several hundred years. The lower strands must all have been formed within the six thousand years, more or less, since the cutting of the 250-foot strand. Ten strands such as those below the 250-foot level could not possibly have been formed without the lapse of a long period. From the beaches themselves it is useless to attempt to calculate the length of time required for their formation. It is manifest, however, that if the lowest major strand is only six thousand years

old, the formation of those below it must have fallen within historic times.

Two other lines of evidence, highly diverse, point to the conclusion that during historic times the Dead Sea has stood higher than now. One line is Biblical criticism; the other is the lakes of distant parts of Asia. M. Clermont-Ganneau, one of the most competent Biblical critics, has written an able article entitled "Where was the Mouth of the Jordan at the Epoch of Joshua?" The line of argument is so different from that usually followed in discussions as to changes of climate, and appears so sound that a résumé of it may well be given here. The conclusion is that in the fifth or sixth century B. C., when the Book of Joshua was finally edited in its present form, the mouth of the Jordan River was not far from the site of the ancient convent of St. John the Baptist, represented in our day by the ruins of Kasr el Yahud. This is about four and a half miles above the present mouth. The Jordan now enters the Dead Sea at a point almost due east of Jerusalem, while Kasr el Yahud lies in a direction about fourteen degrees north of east, as can be readily seen on the sketch map on the next page.

The Book of Joshua contains two specific statements of the exact location of the northern border of the tribe of Judah. In one the limits of the patrimony of Judah are described as follows (Joshua xv, 2–6): "And their south border was

from the uttermost part of the Salt Sea [that is, the Dead Sea], from the bay [Hebrew, *tongue*] that looketh southward." From here the southern border extended westward to the Mediterranean Sea. "And the east border was the Salt

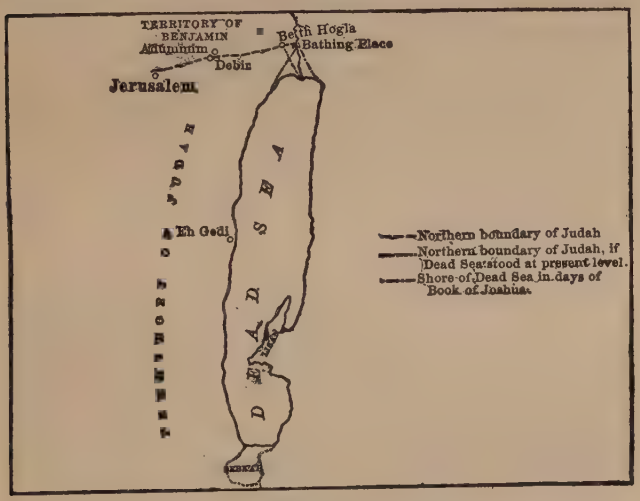

TERRITORY OF BENJAMIN
Beth Hogla
Bathing Place
Debir
Jerusalem
Eh Gedi
Northern boundary of Judah
Northern boundary of Judah, if Dead Sea stood at present level.
Shore of Dead Sea in days of Book of Joshua.

FIGURE 4.

**The Dead Sea and the Ancient Boundary of Judah, after Clermont-Ganneau.**

Sea, even unto the end of Jordan. And the border of the north quarter was from the bay [tongue] of the sea at the end of the Jordan; and the border went up to Beth-hoglah, and passed along by the north of Beth-arabah"; and thence through various points past Jerusalem to the Mediterranean. The other description of the northern border of Judah is found in the eighteenth chapter of Joshua,

where it is described as the southern border of Benjamin which, of course, was coterminous with Judah. The description is given from west to east, instead of from east to west, as in the first case. Verse 18 says that after leaving Jerusalem the border "passed along to the side over against the Arabah northward, and went down unto the Arabah; and the border passed along to the side of Beth-hoglah northward; and the goings out of the border were at the north bay [tongue] of the Salt Sea, at the south end of the Jordan: this was the south border. And the Jordan was the border of it on the east quarter."

Practically every one agrees that Beth-hoglah is the modern Kasr Hajleh, which still preserves the old name almost unchanged. This, together with other identifications, fixes the boundary between Judah and Benjamin from Jerusalem to Beth-hoglah with great exactness. It has been commonly assumed that after running nearly due east and west across the plateau to the Ghor, the boundary suddenly turned to the south-south-east at Beth-hoglah, and ran in that direction for about five miles to the mouth of the Jordan. This seems hardly possible. In the first place it would be highly unnatural to assign to Benjamin a small useless corner jutting into the territory of Judah. In the second place in so minute a description as that of Joshua a sudden change in direction to the extent of almost ninety degrees would surely be

mentioned, for other changes of less importance are carefully recorded. Finally neither end of the Dead Sea now presents any feature answering to the oft-mentioned bay or tongue. If, however, the water stood higher than now, it would reach Kasr el Yahud. In that case the boundary between the tribes would run on in the same general direction both to east and west of Beth-hoglah. On either side of the Jordan the cliffs of the seventy-foot strand, and likewise of the fifty-five-foot, converge in such a manner that if the Sea rose to the foot of the cliffs its northern end would assume the form of a deep pointed bay, which might well be called a tongue. In the case of the seventy-foot strand the tip of the tongue would be not far from Beth-hoglah. Clermont-Ganneau, being unfamiliar with the minute topography of the region, supposes that the sea stood three hundred feet higher than now. So great a rise is unnecessary. Even at the one-hundred-and-seventy-foot level the lake extended well up the Ghor beyond the present bridge seven miles above Beth-hoglah. The pebbly beach formed at this level can be plainly seen high above the river on the plain southwest of the bridge. If we substitute a level of seventy feet above the present Dead Sea for the three hundred of Clermont-Ganneau, his conclusion seems to accord with the Book of Joshua on the one hand, and the topography of the Dead Sea and its strands on the other.

The change in the location of the mouth of the Jordan cannot be due merely to the deposition of a delta. If that were the case, the deltaic portion would of necessity be almost flat. Hence the river would flow slowly, and would not be able to cut deeply below the general surface. As a matter of fact the slope is comparatively steep. The Jordan at its mouth flows so swiftly that when we attempted to row across it we were carried hundreds of yards down stream, and found it almost impossible to make a landing. Because of the steep descent, the stream has cut a broad, deep inner channel, as may be plainly seen below Beth-hoglah. All the old strands in the immediate vicinity, and also all the ruins, lie on the terrace above the present river-bottom, which indicates that the inner valley or channel has been carved by the stream since the level of the Dead Sea was lowered.

The position of Jericho and its well-known existence for more than three thousand years close to the Dead Sea have sometimes been supposed to preclude the possibility of any great expansion of that body of water. As a matter of fact Jericho lies between five hundred and six hundred feet above the present level of the sea. If the sea rose two or three hundred feet it would still be four or five miles from Jericho at the nearest point. Not a single ruin, so far as is known, is located at such an altitude as to preclude a decidedly

higher stand of the Dead Sea during Biblical times. In this connection another point deserves attention. The location of the fords where the invading Israelites crossed after the division of the water at the behest of Joshua has been much discussed. Still greater interest attaches to the identification of the site where Jesus was baptized by John. The Dead Sea, as we shall shortly perceive, appears to have stood higher than now, not only when the Book of Joshua was written, but also in the days of Christ. This being so, it is hopeless to attempt to identify sites. The Jordan now flows at the bottom of a broad valley cut by the stream itself in the soft lacustrine deposits which constitute the floor of the Ghor. These deposits form terraces on either side of the inner valley, low near the sea, but over a hundred feet high near the bridge. All the material which once filled the space between the terraces has been excavated since the level of the sea fell. In the days of Joshua and Jesus, the river flowed scores of feet above its present level. The old fords had no connection with those of to-day.

Nevertheless a point such as the bathing-place, to be referred to later, has doubtless retained essentially its present location for at least sixteen hundred years, as is proved by its relation to the ruins of Kasr el Yahud.

As further evidence of the former condition of the Dead Sea, Clermont-Ganneau quotes a re-

mark of the pilgrim Daniel, a Russian who visited the Holy Land in 1106–07 A. D. After having spoken of the convent of St. John the Baptist, the Kasr el Yahud of our day, and the place where Jesus was baptized in the Jordan, the pilgrim adds: —

"The Jordan went to this place, but seeing its creator approach to receive baptism, it left its bed and turned back affrighted. *Formerly the Sea of Sodom extended clear to the place of baptism; but to-day it is distant about four versts.* The sea, seeing the Lord enter into the midst of the waters of Jordan, fled in terror and the Jordan drew back, as the Prophet says."

Four versts are equal to three miles, which is somewhat less than the present distance of over four miles. Possibly the sea was a little higher in the twelfth century than now; possibly the Russian pilgrim did not get the distance quite right; or perhaps the location of the bathing-place frequented by pilgrims has shifted slightly because of the meandering of the river. The essential point is that at the time of Christ, according to the legend, the sea stood decidedly higher than at the time of Daniel's visit, eleven centuries later.

The facts thus far cited prove merely that the level of the Dead Sea was higher in the past than at present, and hence that the climate of Palestine was moister. They prove nothing as to whether the change was progressive or pulsatory.

We now come to certain facts which bear directly on this latter problem.

Clermont-Ganneau has not taken account of the possibility that the level of the Dead Sea may have fluctuated. He assumes that the water has fallen gradually. Therefore he is puzzled by two statements dating from the fourth and sixth centuries, and dismisses them as mistakes. In the itinerary of the Bordeaux Pilgrim, written by an Aquitanian in 333 A. D., we find the following: "From Jericho to the Dead Sea is nine [Roman] miles. The water itself is intensely bitter, so that there are no fish whatever, nor any boats; and if a man put himself in it to swim, the water itself turns him over. Thence to the Jordan where the Lord was baptized by John is five miles. In that place there is a site above the river, a little hill on that bank, where Elijah was carried up to heaven."

At present the distance from Jericho to the Dead Sea, which the Pilgrim gives as nine miles, is only six and a quarter, or, by the road, seven; while from the sea, where ordinarily visited, to the bathing-place of the Jordan, is four miles, or by the road nearly four and a half, as against the five of the Pilgrim. In general the distances given in the itinerary are quite accurate, and the presumption is that those here given are equally correct.

The work of Gregory of Tours, entitled "De Gloria Martyrum," contains an excellent account

of the Jordan River which evidently was based on sources much fuller than the account of the Bordeaux Pilgrim. After speaking of the two streams which unite to form the Jordan, Gregory says that the river "flows to Jericho and farther," and that the bathing-place where lepers are healed lies at a point where the river returns upon itself. "Five miles below this point the Jordan throws itself into the Dead Sea, where it loses its name. This sea is called the Dead Sea because it has been stirred up by the burning of Sodom and the other cities, and its waters are made heavy by a mixture of asphalt."

Gregory of Tours lived from 540 to 594 A. D. Possibly he took his figures from the Bordeaux Pilgrim, his predecessor by over two hundred years. If so, his statement merely confirms the conclusion that three centuries after Christ the Dead Sea stood as low or possibly a trifle lower than now. In Gregory's day, however, the level cannot have been markedly higher than now. If it had been, he would surely have corrected the statement of his fellow countryman, for the bathing-place and the Dead Sea were known familiarly to every pilgrim. If we accept the Book of Joshua and the accounts of the Pilgrims exactly as they stand, it appears that five centuries before Christ the climate of Palestine was such that the Dead Sea stood about seventy feet higher than now. At the time of Christ the level was

still high. At the beginning of the fourth century A. D., and possibly at the end of the sixth, the climate had become so dry that the water stood no higher, or perhaps even lower than at present. At the opening of the twelfth century slightly moister conditions may possibly have once more prevailed, for Daniel the Russian apparently found the sea nearer to the bathing-place than the accounts of his predecessors would indicate.

A comparison of the dates of the various stages of the Dead Sea with those of the baths described by Professor Butler enables us to choose between the theories of progressive and pulsatory change. Omitting earlier conditions, let us repeat the dates from the time of Christ onward, putting them in tabular form.

30 A. D. Baptism of Christ. The sea stood high.

150–250 A. D. Many baths in Bosra, Hauran, etc. Moist conditions.

333 A. D. The Dead Sea stood as low as now. A dry era.

550–560 A. D. Thomas built a bath at Ilandarin. Moist conditions.

580–590 A. D. Gregory implies that the Dead Sea stood low, but this is not certain.

712–750 A. D. Large Mohammedan baths were located far out in the desert. Moist conditions.

1106 A. D. The Dead Sea stood higher than now according to the pilgrim Daniel.

The most cursory study of the table shows that the facts are not reconcilable with a progressive change of climate. We cannot assume that the region tributary to the Dead Sea suffered prolonged drought while the deserts to the east and northeast were abundantly watered. The experience of modern times proves beyond question that in all parts of Syria marked fluctuations in the annual rainfall occur synchronously. A dry year in the north is dry in the south. Therefore we must either entirely disregard the evidence of the Pilgrims, or else adopt the hypothesis of a pulsatory climatic change. Confining ourselves to the evidence immediately before us, we are forced to conclude that between 250 A. D. and 333 A. D., rapid desiccation took place. This was followed by a return to, or at least toward the former status, so that in 550 A. D., or thereabouts, the desert around Ilandarin was well supplied with water. The next thirty or forty years appear to have been again a period of desiccation. The evidence of Gregory of Tours is not conclusive, however. We must test his statements by facts of some other kind. After this doubtful second dry epoch moister conditions ensued, prevailing in 712–750 A. D., and also in 1106 A. D. Further study will doubtless show other periods of aridity or of moisture. Our present concern is to determine unquestionably which of our various climatic theories is true.

Having been led to adopt the theory of pulsa-

tory changes of climate, let us put it to the test by comparison of the Dead Sea with other enclosed salt lakes. Let us first see to what extent the other lakes agree with the Dead Sea in indicating pulsations, and then how far all the lakes agree with one another and with other evidence as to the dates of moist or dry epochs. In order that our test may be rigorous I select lakes in widely separated parts of Asia, namely, Lake Buldur in central Asia Minor, the Caspian Sea, the Lake of Seyistan on the border where Afghanistan and Beluchistan are contiguous with Persia, and Lop-Nor in Chinese Turkestan, more than three thousand miles distant from Palestine.

Lake Buldur may be dismissed briefly. I visited it in August, 1909, and found it surrounded, not only by a minor strand eight or ten feet above the present level, but by five major strands at elevations of 750, 460, 400, 100, and 35 feet. In all respects they appear to agree with those of the Dead Sea. For our present purpose they are important as indicating that the pronounced climatic fluctuations of post-glacial time were of the same character in central Asia Minor as in southern Palestine, five or six hundred miles to the southeast.

By reason of its size and its prominent position in history, the Caspian Sea is decidedly more important than Lake Buldur. Although its post-glacial history has not yet been clearly worked

out because of complications due to the presence of the Sea of Aral and of a relatively low channel leading to the Black Sea, we know in general that in prehistoric times the Caspian Sea fluctuated as did other lakes. Coming to historic times we find that the accounts of Greek and Latin authors indicate that previous to the time of Christ and for a century or two thereafter the level was well above that of to-day. From the statements made by Strabo about 20 A. D., as to the distance from the mouth of the Phasis River in the Black Sea to that of the Cyrus in the Caspian, and as to the width of the broad sandy plain on the west coast of the Caspian, Khanikof estimates that the Caspian then stood eighty-five feet higher than now. A few centuries later it had fallen to a level even lower than that of to-day, as is proved by a wall at Aboskun at the southeast corner of the sea and by another at Derbent in the middle of the west side. The ends of both walls are now submerged for a considerable distance. The exact date of neither wall is known, but both were built somewhere between the fourth and seventh centuries for the purpose of preventing the inroads of barbarians. I shall recur to the subject later. Whatever may be the exact dates, the two walls together prove that at some time between 300 and 700 A. D. the Caspian Sea stood not only as low as now, but distinctly lower. Other ruins beneath the level of the water also indicate a contraction

of the sea. Unfortunately they cannot be dated exactly. The most important are those of an old caravan serai whose top projects from the water near Baku. The style of architecture appears to indicate the thirteenth century as the probable date of its erection. If this is so, the lake must twice have stood at a low level, for the unquestionable statements of reliable Arab and Persian authors prove that in the tenth century the ordinary level was thirty or forty feet above that of to-day, while in the fifteenth century it stood for decades at a level slightly lower than in the tenth, but above that of the present.

The evidence of the Lake of Seyistan confirms that of the Caspian Sea. Strands belonging to the earlier post-glacial stages are not clearly in evidence, because when high the lake overflows to the God-i-Zirrah. Nevertheless, it is clear that the level has fluctuated in the same fashion as that of the Dead Sea and Buldur. Ruins beneath the present surface prove that it was smaller than now at some time early in the Christian era, while Persian traditions and old books state that about 1000 A. D. it was decidedly larger than now.

At Lop-Nor, in the centre of Asia, we find similar conditions. Lack of space forbids an extended discussion of this lake, but I have considered it fully, together with the Caspian Sea and the Lake of Seyistan, in "The Pulse of Asia." Lop-Nor is surrounded by five major strands, like those of

Buldur and the Dead Sea. The resemblance is so close that we can scarcely doubt that similar post-glacial climatic fluctuations have taken place in both western and central Asia. Lop-Nor appears also to have been subject to minor fluctuations. In the early centuries of the Christian era Chinese records indicate that it was smaller than now. The traditions of the Lopliks state that in the Middle Ages it expanded far beyond the present limits. In this connection the researches of Dr. M. A. Stein in all parts of the basin tributary to Lop-Nor are particularly valuable. As the result of his archæological expeditions he finds that a considerable number of sites were abandoned at the end of the third century of our era. Some were reoccupied in the fifth and sixth centuries. None, apparently, were in use during the seventh century, but some were again inhabited in the eighth. All the sites to which reference is here made, although formerly prosperous towns, are now either uninhabited and half buried in sand, or else tenanted by a mere handful of people. In 1905–06 I examined most of these sites. In every case water is now entirely lacking, or the amount is utterly inadequate to support a tithe of the ancient population. As the result of his last expedition, in 1908–09, Dr. Stein has found many other facts which seem to him to support the general conclusion as to change of climate. Thus the results of archæological

study in central Asia confirm those of geographical study, exactly as in Syria.

Before summing up the evidence of all the lakes, a few facts should be stated in reference to a possible fall of the Dead Sea to a level even lower than that of to-day. The Caspian Sea and the Lake of Seyistan have almost certainly stood lower than at present. Otherwise ruins could not be located under water. Probably Lop-Nor has likewise contracted at certain periods, for some Chinese records assign to it a size smaller than that of to-day, while others describe it as larger. The only suggestion of a very low stand of the Dead Sea is contained in some soundings which I took with the aid of Mr. Graham. On account of the small size of our boat and the treachery of the lake we obtained only one good series. This consisted of twenty-four soundings at subequal intervals from the shore at the northeast corner of the lake outward for six thousand seven hundred and sixty feet. At depths of twenty and thirty feet sudden irregularities in the slope of the bottom suggest small strands. Between the depths of forty-one and forty-eight feet the irregularities are pronounced for a distance of half a mile. The contour of the bottom simulates that of a series of beaches thrown up one after another in such a way as to form lagoons. The same condition may be seen along the present shore near the mouth of the Jordan. A single series of soundings is insuffi-

cient ground for conclusions, but is important because of its agreement with allied phenomena elsewhere.

Let us sum up the evidence of the lakes. The agreement among the major strands indicates that the post-glacial history of western and central Asia has everywhere been characterized by the same climatic fluctuations. Except for Buldur, which has not been well studied, all the lakes appear to have experienced a period of contraction in the early part of the Christian era, followed by expansion in the Middle Ages, and by renewed, but less marked contraction in modern times. It may be added that during the past century the times of exceptional drought for a series of years seem to have prevailed synchronously over all parts of the large area under consideration. The late sixties and early seventies, for example, were an epoch of scanty rainfall and famine from China to Palestine. In general, then, we seem to be justified in two conclusions. First the climatic history of Syria, Asia Minor, Persia, Turkestan, and western China has been so similar that we may use data from any of these countries in determining the changes of climate in the others. Second, the theory of pulsatory changes offers the only satisfactory explanation of the varied phenomena of the lakes and ruins which have formed the subject of our investigation.

Assuming that this theory is sufficiently established to serve as a working hypothesis, let us attempt to ascertain the dates of the pulsations from the time of Christ onward. The conclusions to which we seem to be led are illustrated in the diagram on this page, where the

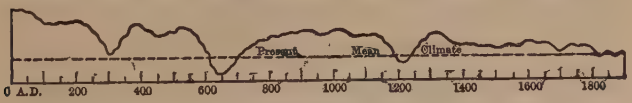



FIGURE 5.

Approximate Climatic Fluctuations during the Christian Era.

high portions of the curve indicate conditions of moisture, and the low, conditions of aridity. The actual height of the curve must not be understood as implying anything as to the absolute amount of rainfall. As yet, our knowledge of the subject is so slight that we can merely state that certain epochs were drier or moister than the present, but whether the rainfall in the most propitious times was ten per cent or fifty per cent greater than now, we cannot tell. Having investigated the dates of the pulsations of the Dead Sea, the next step is to compare these with the dates elsewhere. The pilgrim Daniel's legend of the retreat of the sea at the sight of Jesus agrees with the statements of Strabo about 20 A. D. in regard to the shores of the Caspian Sea. The second half of the first century may have been slightly drier than the first half, for at that time famines prevailed to an unusual extent. The second century

and the first half of the third, to judge from the large number of ruined towns, baths, terraces, and other evidences of human occupation found in the desert from Syria through Persia to China, were distinctly moister than the present epoch. During this same period, or at least at some time near the beginning of the Christian era, the lakes of Lop-Nor and Seyistan, as well as the Dead Sea and the Caspian, appear to have been at a high level. On all sides the evidence agrees in indicating that the first two and a half centuries of the Christian era were relatively moist. The first half century may have been moister than any succeeding period, and the second half century somewhat drier, but there is no indication that at any time the climate reached the degree of aridity now prevalent.

At the end of the third century we find signs of pronounced desiccation. In the Lop basin, according to the researches of Dr. Stein, many ruins were abandoned at this time. A little later, in the early part of the fourth century, the statements of the Bordeaux Pilgrim seem to show conclusively that the condition of the Dead Sea was practically the same as now. The evidence of the inscriptions found in the ruins of Syria also suggests aridity, as will be shown below.

A relatively moist period next claims our attention, as may be seen in the diagram. We have no exact data as to the level of any of the

lakes at this time. In all the borderlands of Syria desertward, however, prosperity prevailed from about 325 or 350 A. D. to 550 or later. At this time the churches of Aujeh, the wonderful mosaic map of Madeba, and the bath of Thomas at Ilandarin were constructed. For over two and a half centuries the favorable conditions continued. Far to the east in the Lop basin some of the ruins which now are waterless were occupied as in Syria. Nevertheless, we cannot be positive that the period of prosperity was uninterrupted. According to Rawlinson the most ancient and reliable tradition assigns the building of the wall at Aboskun to the Sassanian king, Firuz, as a protection against the invasion of barbarians under Kiyataleh. Firuz ruled from 459 to 484 A. D. Possibly a period of unusual dryness prevailed in his day, and set the barbarians of the deserts of Turkestan on the warpath. We can scarcely believe, however, that the Caspian Sea stood lower than to-day. If the climate were so dry as to cause such a result, the borderlands of Syria would have become utterly uninhabitable, even worse than to-day. Yet we know that at this very time the Christian communities of the Negeb on the south and of the parts of Syria far to the north were obtaining a living from the soil in places now too dry for crops. Possibly the main wall was built by Firuz, but the extension which is now submerged

beneath the Caspian was not constructed till later. The wall will well repay further study, as will the one at Derbent, whose date we can only surmise.

A little more than a century after the reign of Firuz conditions of aridity worse than those of the third century appear to have suddenly overtaken the lands of the east. The statement of Gregory of Tours as to the position of the Dead Sea suggests, but does not prove, that about 590 A. D. the level was not greatly different from that of to-day. The burial of the Olympian ruins under fifteen or twenty feet of river silt at this time seems to be another indication of aridity. I have discussed the question in the *Geographical Journal of London* for December, 1910, and repetition here would expand this volume unduly. The main point is that aridity appears to have caused the death of forests. Then the soil on the mountain-sides was left with nothing to hold it in place. Accordingly it was washed down by floods, and filled the bottom of the valley of the Alpheios, covering the ruins.

Arabia, even more than other countries, furnishes strong evidence of great aridity about six centuries after Christ. The Sherarat tribe of Arabs inhabits the triangle between Ma'an, Jauf, and Teima, across the northern edge of which ran the ancient road from Petra to the Persian Gulf. The region is wholly desert, and

contains no oases, nor any wadis large enough to furnish continual pasturage. No place is sufficiently watered to be the headquarters of a large tribe. The Sherarat tribe possesses the finest dromedaries in the northern half of Arabia, but nevertheless is poor and weak. Its own district will not support it. Hence the tribesmen are forced to seek the protection of the larger tribes roundabout. During the dry summer they can be found in large encampments among the Howeitat along the line of the Mecca railroad from Teima to Shobek, or with the Beni Atrieh, Beni Sakhr, and Roala tribes on the borders of Moab, or northwest of Jauf in the great Wadi Sirhan and on up to the Hauran. Mr. Douglas Carruthers was the first explorer to penetrate the home district of the Sherarat. They told him that according to the story handed down from their fathers, the tribe was once large and powerful. In the days of Mohammed, however, as they themselves put it, a great drought occurred, with no rain for seven years. The scarcity of water and grazing became such that finally the entire tribe, with a few exceptions, migrated like the ancient Israelites. Passing through Egypt they went on westward, and settled in Tunis. This migration had nothing to do with Mohammedanism. It preceded the coming of the new religion. It seems to be a clear indication of a phenomenal drought, so severe as to cause wholesale migration.

We can date it within a few decades; it must have occurred in the early part of the seventh century, probably before the Hejira in 622 A. D.

The wall projecting miles into the shallow Caspian Sea at Aboskun seems to be conclusive evidence of a similar period of great aridity in central Asia. As we have seen, the occurrence of such a period in the fifth century is hardly probable. Therefore, while Firuz may have built the main wall about 460–480 A. D., I feel strongly inclined to believe that the part now under water was built at a later date. If a period of aridity, such as the legend of the Sherarat describes, lasted long, the Caspian would inevitably shrink. At the same time the hordes of the Transcaspian deserts would suffer like the Sherarat. Accordingly raids would become numerous, and the Persians would naturally extend the wall across the space left by the receding waters.

The probable climatic history of western Asia after the dry period of the sixth century may be readily seen from the diagram already referred to, on page 327. After the seventh century conditions improved. The Mohammedan bath at Es Serakh indicates moist conditions in the first half of the eighth century. According to Istakhri the Caspian Sea in 920 A. D. stood twenty-nine feet above the present level. In 1106, if the pilgrim Daniel has not erred in his distances, the Dead Sea stood higher than to-day. Next comes

a dry period. The caravan serai in the waters of the Caspian off Baku appears to date from the twelfth or thirteenth century, to judge from its architecture. The aridity of this time was not permanent, however, for in 1306 A. D. the Caspian Sea again rose to a height thirty-seven feet above the present surface. This is said to have been due to a change in the course of the Oxus, which, after an interval when it did not reach the Caspian, again came to it. The river is said to have been diverted from the Caspian to the Sea of Aral by the Mongols in 1221. Possibly this explanation is sufficient. In the Lop basin, however, at practically the same time, the so-called Dragon Town of Chinese annals was overwhelmed by the rapid expansion of Lop-Nor. This suggests a period of unusual rainfall lasting long enough materially to alter the level of the lakes, and to cause the Oxus to resume a course which it is known to have followed in earlier times when precipitation was more abundant. Since 1300 the Caspian has evidently fallen; and traditions elsewhere also indicate progressive aridity. At Jerash the best-informed man in the village told me that the country is now less plentifully watered than formerly. "In our books," he said, "it is recorded that since the days of Tamerlane (about 1400 A. D.) many springs have become dry and many streams have ceased to flow. The great Tamerlane bound the waters."

The changes of climate from the time of Christ to the eighth century seem to be epitomized in the architectural activity of Syria. Professor Butler calls attention to a curious fact exemplified in the accompanying diagram. The horizontal

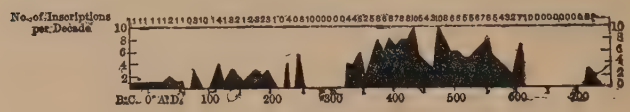



FIGURE 6.

Inscriptions found by Princeton Expeditions in the Drier Portions of Syria. Arranged by Decades.

line, as usual, represents time. The vertical component represents the number of inscriptions found by the various Princeton expeditions upon buildings in the uninhabited or almost uninhabited ruins of Syria. The inscriptions number nearly two hundred and twenty. Those from Palmyra are not included. Hundreds might be added if the work of other expeditions were included. The diagram shows that from the beginning of the Christian era to 250 A. D. the number of inscriptions increases. Four decades are without inscriptions, namely, 61–70, 91–100, 211–220, and 231–240 A. D. This means that during those years no important buildings were constructed so far as records were found by Professor Butler. On the other hand, from 111–120 A. D. four such edifices were erected, and from 241–250, six. The significant point of the diagram is that not a single inscription was found dating

from 252 to 324 A. D. After 324 the number goes on increasing in normal fashion to the middle of the fifth century. It remains high until 609, when it suddenly returns to zero. A hundred years later, architecture again revives somewhat, at the time of the building of the bath at Es Serakh. Later than that date inscriptions are not numerous, or are not available, being in Arabic. Architecture flourished in the eleventh century, however, for many large Arab castles were begun. The most important ones were undertaken in the twelfth century, and were completed in the thirteenth. This was clearly a time of great prosperity, for many fine tombstones of the eleventh and twelfth centuries have been found in regions now desert. With them are associated the remains of houses with pointed Saracenic arches. After about 1250 A. D., however, all forms of art and architecture practically disappear except in regions now easily habitable.

The activity of architecture is an accurate gauge of the prosperity of a country. Private houses and public buildings are built in large numbers in good times. In bad times old houses are repaired, and public buildings are forced to await a more propitious period. Between 252 and 324 A. D. something put a stop to architectural progress in most of the drier parts of Syria. It was not war. From the time of the Roman conquest in 80 B. C. Syria suffered no war until 116

A. D., when Trajan made Arabia a province. Thereafter peace prevailed unbroken over most of Syria until the Persian invasion of Khosroes in 610. A few warlike campaigns occurred, such as that against Palmyra under the Emperor Aurelian; but this did not disturb most of Syria. Nothing, according to Professor Butler, offers any explanation of the cessation in building unless it be some economic cause such as poverty engendered by decades of persistently poor crops. The break in the inscriptions during the seventh century may be due in part to the Persian invasion. That, however, was not of such a nature as completely to stop progress. The devastating Mohammedan irruption did not take place for about thirty years. Nevertheless no important buildings were erected. We need not carry the matter farther. From the first century to the thirteenth, and we might say until to-day, architectural activity in Syria has apparently fluctuated in the same fashion as rainfall. To-day the state of the country depends almost entirely upon the amount of rain from year to year. In the past it appears to have been equally dependent. Each pulsation of climate has thrown the population into poverty or prosperity, with far-spreading results in every phase of life.

## CHAPTER XV

### THE FALLEN QUEEN OF THE DESERT

To appraise the full historic importance of the rhythmic climatic swing from moist to dry and dry to moist lies beyond the scope of our present knowledge. Yet in many cases we can clearly trace its working, and can form an estimate of its share in moulding human destiny. Among a score of famous Syrian cities, Palmyra stands out preëminently as an illustration of the peculiar and often unexpected results of climatic pulsations. It may also serve as a final test case by which to measure the accuracy of our previous conclusions. Our journey thither brought forcibly before us the influence of occasional dry seasons in modern times. The ruins and their history present an almost unparalleled example of the varied and surprising results which ensue when many dry seasons are combined into prolonged periods of aridity. The past greatness and present decay of Palmyra can best be appreciated by comparison with Damascus. Both of these famous cities have claimed to be Queen of the Desert. Once they strove as rivals, apparently on equal terms. Palmyra was vanquished, and has become the prototype of desolation. Damas-

cus has made good her claim, and stands for all that is queenly, permanent, unchanging.

For a few years, under wise Odenathus and brave Zenobia, Palmyra dazzled the world. Previously the city had been of no special importance. We hear of it in 34 B. C. when Antony, at the instigation of Cleopatra, sent an expedition to plunder it. Taking their most valuable possessions, the inhabitants, largely merchants, fled across the Euphrates, where they were able to repulse the Romans. For three centuries thereafter the city increased in wealth and power. In the third century of our era, Palmyra, to judge from its ruins, must have been as populous as its fortunate rival, Damascus, and far more important and beautiful. Practically all the trade between the Roman Empire and the Eastern lands of Persia and India was in its hands. Its merchants were opulent princes, able and willing to adorn the broad streets and luxuriant gardens of their fair city with colonnades, temples, statues, and other works of art in a profusion well-nigh unequalled in the history of the world. Rome and Persia contended for Palmyra's friendship. Each was willing to concede almost complete independence provided the city would be a faithful ally. So great was the power of the desert city that, when the ambitious prince Odenathus came to the throne in A. D. 262, he was able quickly to establish an independent kingdom,

extending from Egypt almost to Constantinople. On his death, in 267, the government fell into the hands of Zenobia, the famous Arab queen, whose beauty made men her willing servants, and whose chastity, wisdom, and bravery won the love and respect of all her followers. Unfortunately the greatness of her power drew down upon her the jealous wrath of Rome. Although she led her loyal Arabs in person and shared the dangers of the camp, the march, and the battle, the Roman legions were too strong for her. Defeated in 271 A. D., she was taken to Rome in 273 to grace the triumph of Aurelian, and to become the wife of a Roman senator and the mother of Roman citizens. Palmyra suffered in the wars of Zenobia, but was not destroyed; nor was it injured more than other great cities have been time and again. Nevertheless, its glory rapidly declined by reason of a decrease in its trade. The huge caravans which had brought the wealth of the East no longer frequented its marts, and it relapsed into the comparative insignificance which had been its lot for ages previous to the Christian era.

In the fourth and fifth centuries it recovered somewhat, and became a Roman post and an archbishopric under the Metropolitan of Damascus. In the sixth century Justinian repaired the city, then almost deserted, restored the walls, and built an aqueduct to supply water to the garrison which he stationed there. No more is

known of Palmyra in Roman history. When the Mohammedans took possession of North Syria, the place was of no importance whatever, so far as can be learned. The ruins of a large mediæval castle, however, indicate that during the Middle Ages it regained something of its old position. Benjamin of Tudela says that when he visited it, about 1172 A. D., its population included two thousand Jewish merchants. With such a number of merchants, or even with half as many, the total population must have been at least five or ten thousand. In the days of Abulfeda, 1321 A. D., it had probably already declined, for he simply mentions its palm and fig trees and its ruined columns and temples. During the past century the size of modern Palmyra appears to have varied. Addison says that in 1835 it had only twelve or fifteen families; Cernik attributes to it a population of eight hundred souls in 1875; in 1909 we found perhaps a thousand people, or possibly more, gathered like wasps in and about the magnificent ruins of the Temple of the Sun. The proud city has fallen to the estate of a squalid village, whose mud houses cluster almost unnoticed among ruins which for combined splendor and desolation are well-nigh unequalled.

Far different is the story of Damascus. She is now what she has always been since first the world found speech in history, — a busy, enterprising city. Two thousand years after Christ,

even as two thousand years before, her plashing fountains quench the thirst of myriads who bargain with half-angry clamor in her shady bazaars, and then go forth to gossip under the fruit trees of mud villages roundabout, or to spread her fame in the hot tents of the sandy desert and in the lands which lie beyond. Old she may be, and wise, if experience gives wisdom; but she is far from being decrepit. Electric cars clang in her streets, and motormen more reckless than those of New York rejoice in running over sleeping street dogs, or in causing pedestrians to jump as the cars swing dangerously around the curves of a crowded bazaar. Three railroads — one might almost say four — centre in the city, running south to sacred Medina and Mecca, southwest past Galilee to Haifa on the coast of Palestine, and northwest to Reyak. There one branch goes north to Aleppo to connect with the German railroad soon to be built from Constantinople to Bagdad, and the other west to the prosperous port of Beirut. Electric lights run by power from the clear Abana, praised of Naaman, illumine shops whose gowned keepers still sit cross-legged within reach of all their wares, and sell to wild camel-keepers of the desert, just as their predecessors probably did in the days when Benhadad's general suffered from leprosy. As they sip their black unsweetened coffee, or drink their lemonade, the merchants talk not only of prices

and of the doings of their great ones, but of liberty, parliament, and constitutional government. Everywhere new modes of action and of thought are curiously commingled with those of the past; for the most ancient of cities is still progressive in its own oriental fashion, and seems to be endowed with the secret of perpetual youth.

History presents few contrasts more remarkable than that between short-lived Palmyra and long-lived Damascus. Why should two cities, closely resembling each other in location and physical advantages, and inhabited by people of the same race, have had such strangely different careers? Both towns are oases, located only a hundred and fifty miles apart upon the northern edge of the Syrian Desert, and dependent upon water from the neighboring mountains of Anti-Lebanon or its spurs. The ancient greatness of both was due to an abundant supply of water supporting rich fields and gardens upon the edge of the desert, where caravans must rest, and where those from the East naturally exchanged goods with those from the West. A study of the map at the end of this volume shows that in some respects Palmyra had the advantage over Damascus. Caravans cannot cross the desert south of Palmyra, and therefore those from Egypt, Palestine, and southern Syria used to come up to Damascus and then strike northeast to the

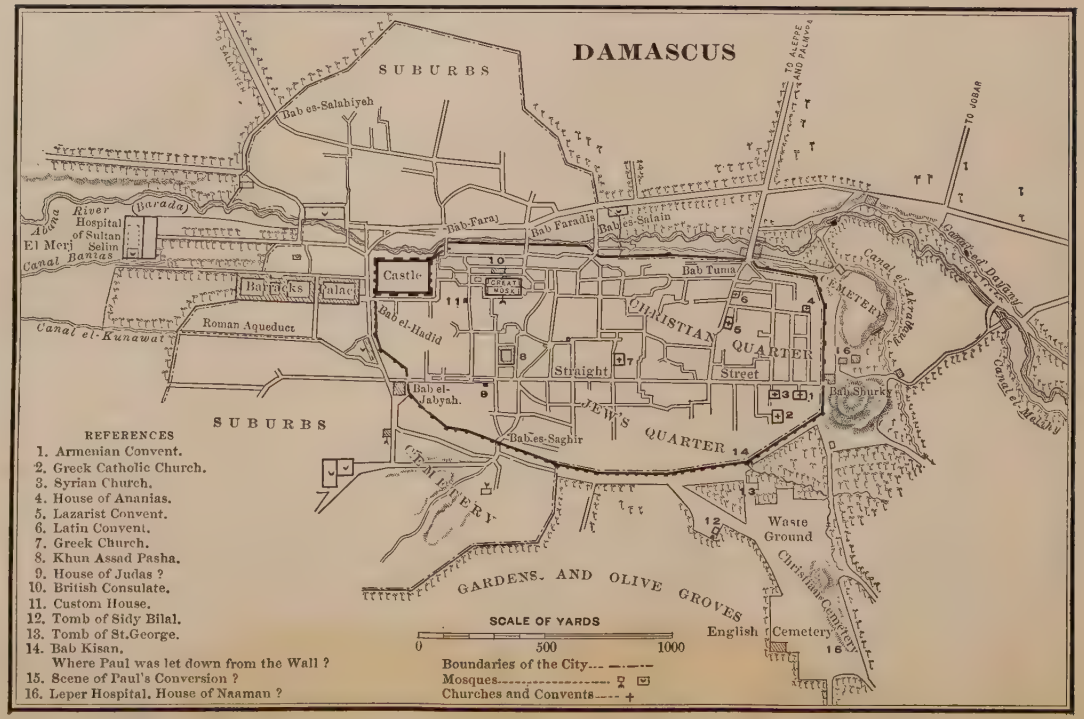
city of Zenobia. From the ports of northern Syria also, and from all the country up to Antioch, where the disciples of Christ were first called Christians, and to Tarsus, the city of Paul, at the northeast corner of the Mediterranean Sea, the Eastern trade went through Palmyra, leaving Damascus far to the south. Moreover, all the roads to Palmyra are level and easy, while some of those to Damascus are mountainous. Why, then, has Damascus persisted in almost unchanged prosperity and importance for ages, while Palmyra, long prosperous but relatively unimportant, suddenly flashed forth with meteoric splendor, and then utterly faded away?

On the whole, the modern capital of Syria appears to be smaller and less wealthy than its predecessor. The character of the two may be judged from a comparison of Pliny's description of Palmyra with the description of Damascus in Mill's "International Geography," a book which serves much the same place to the modern Englishman that Pliny's work did to the citizens of the Roman Empire. The description of Palmyra runs thus: "Palmyra is a city famous for the beauty of its site, the richness of its soil, and the delicious quality and abundance of its water. Its fields are surrounded by sands on every side, and are thus separated, as it were, by nature, from the rest of the world. Though placed between the two great empires of Rome and Parthia, it

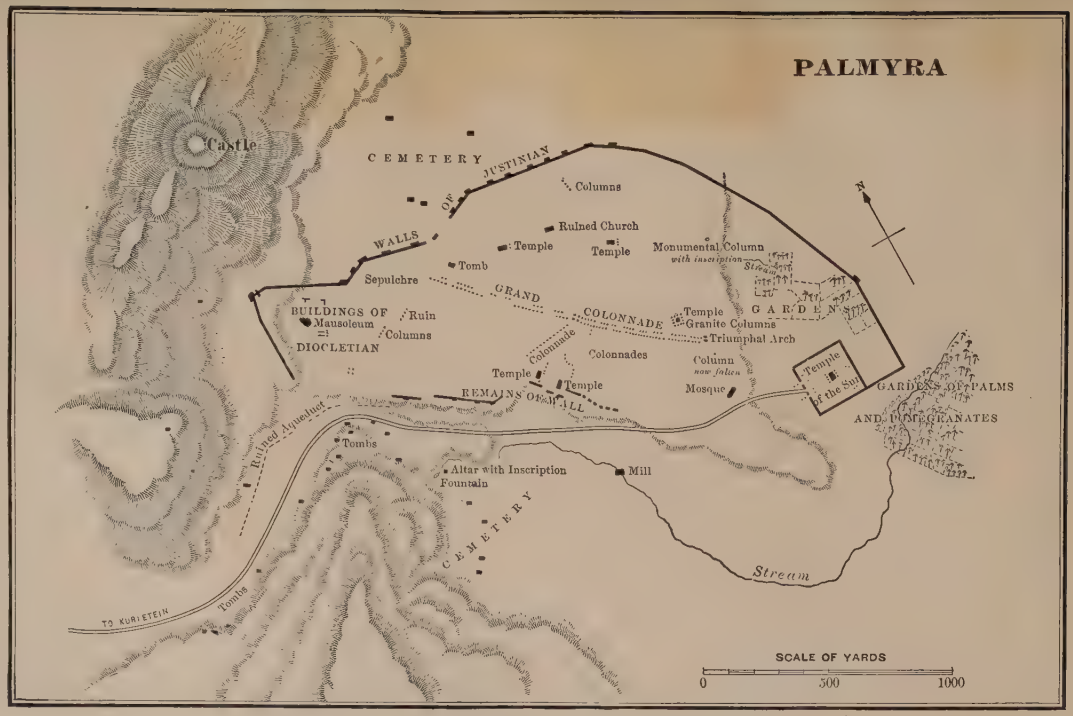
still maintains its independence; never failing, at the very first moment that a rupture is threatened between them, to attract the careful attention of both."

The modern description of Damascus runs thus: "Damascus, the largest town in Syria, (is) built amidst extensive gardens, on the edge of the desert beneath Anti-Lebanon. Lines of railway connect Beirut with Damascus, and a steam tramway runs from Damascus to the Hauran. Other inland transport is by mule or camel."

The two descriptions give the same general impression. The size of the two places may be judged from the following statements of Porter: "That portion of the ancient city [of Damascus] within the circuit of the ancient walls [built by the Romans at approximately the time of the construction of the walls of Palmyra] is about three miles in circumference. It is densely populated throughout, with the exception of a few gardens on the south side. On the northern side of the city proper there is an extensive suburb; but by far the largest suburb lies on the south and west of the city, stretching out into the plain for about two miles. [The city's] length, from north to south, is about three miles, and its greatest breadth, a mile and a half." The circuit of the city is about nine miles, according to Porter's map and description. In regard to Palmyra, he says that the walls "are only about




REPRODUCED FROM PORTER'S "FIVE YEARS IN DAMASCUS"




REPRODUCED FROM PORTER'S "FIVE YEARS IN DAMASCUS"

three miles in circumference [the same as those of Damascus], but there is sufficient evidence to show that the ancient city extended far beyond them, and probably occupied a space nearly ten miles in circumference." Evidently ancient Palmyra and modern Damascus were of nearly the same size, so far as area is concerned. This is made clear by the two accompanying plans reproduced from Porter's book, and reduced to the same scale. The plan of Palmyra looks smaller because the parts of the old city outside the wall are not included. A comparison of the walls of the two cities, or of the grand colonnade of Palmyra and the similar avenue called Straight Street in Damascus, gives a fair idea of the relative size of the two "Queen Cities of the Desert." The greatness of the fall of Palmyra may be judged from the fact that the modern village fills scarcely more than the area of the Temple of the Sun, represented by the square at the east end of the plan. Modern Damascus is estimated to have a population of about one hundred and eighty thousand. In its days of greatness Palmyra may have had approximately the same number.

Before discussing the cause of the peculiar history of Palmyra and the reason for the contrast between the two queen cities, let us gain a fuller idea of the country between the two, and of the effect of dry seasons upon its inhabitants.

It is easy to reach Palmyra. The desert plains of fine gravel which lie east of the Anti-Lebanon range and between various minor ranges are so smooth that a carriage or automobile can readily be driven almost anywhere, even without roads. The only difficulties arise, first, from the waterless stretch of about fifty miles east of Karietein, the last inhabited place before Palmyra; second, from the heat of the desert; and third, from Arab robbers. As we travelled by carriage and were able to take water, the first difficulty proved insignificant; but it is so distinct an obstacle that, although previous to the opening of the railroad from Damascus to Aleppo caravans containing an annual total of from a thousand to fifteen hundred animals occasionally passed this way, many more chose to go a hundred and fifty miles farther north by way of the well-watered route through Aleppo. Since the completion of the railway, the roads to Palmyra are deserted by all save a few frightened villagers, occasional plundering Arabs, or a handful of curious Europeans.

Intense heat and Arab raids may both be avoided by choosing the proper season, which is early spring or late fall. Our journey was of necessity made late in May, at almost the worst possible season. On May 31, among some suburban ruins in the desert ten miles south of Palmyra, the temperature, under the influence of a south wind, rose to one hundred and four degrees at

half-past nine o'clock, reached one hundred and seven at noon, and remained above one hundred and four until after four in the afternoon. In the morning, when the temperature was about seventy-five degrees, our shirts and coats of khaki felt uncomfortably warm, but later, when the air became hotter than our bodies, we wished that, like the Arabs, we had worn thicker clothing to keep out the intense heat. In passing from the shade into the sunlight it seemed, as Mr. Graham put it, as if we could feel the sun strike us with a veritable blow. A strong wind at noon brought no relief, but felt literally like the blast when a furnace door is opened.

We travelled from Damascus to Palmyra and back to Homs between May 26 and June 4, at the height of the season for Arab raids; for these, like the majority of human actions, are timed according to the earth's rotation and the inclination of its axis. As a rule the Arabs make raids on one another, rather than on the sedentary population, who are protected by their villages. On long raids the plunderers often ride three or four hundred miles to the scene of operations. To be successful they must have camels to endure thirst and to travel hard on little food, and horses to use in the final dash, when speed and docility are required in order to round up and drive off the camels or other animals selected as prey, or to ride down an escaping victim. The mares,

however, which are the only horses kept by the Arabs in any numbers, cannot endure long marches without drinking. Accordingly each Arab in a well-equipped party takes a milch camel and a mare which has been taught to drink camel's milk. He rides the camel in the desert, and uses its milk to supply both himself and his horse with food and drink. When the prey is near, the camels are left in charge of a few of the raiders, and the rest ride off on horseback. Only when the camel foals are several months old can the mothers safely be removed from them. Hence May and June are the great season for raids. Earlier than this the Arabs do not like to take away the mother camels. Moreover, the business of caring for the young animals of all sorts is too engrossing to permit many raids. Later, during the progress of the hot, rainless summer, many springs and wells dry up, and this not only makes it hard to travel across the desert, but obliges the Arabs, both the plundered and the plunderers, to concentrate around the larger supplies of water. Raids are therefore dangerous because so many people are together.

Because of the lack of rain, raids were unusually numerous in the spring of 1909. The big tribes had been forced to come far in toward the cultivated lands, and everything tempted them to plunder and fight. Our experiences on the road to Palmyra show how numerous were the

raids that season. The first day's drive from Damascus brought us to Nebk, a clean Syrian village, whose poplar groves and orchards make a spot of lovely green among the treeless limestone wastes of the gray and brown spurs east of Anti-Lebanon. There we heard that on the previous day a Danish newspaper correspondent, in a forlorn attempt to cross the desert with no money in his pocket, no water in his canteen, and no Arabic in his head, had been set upon by Arabs and not only robbed, but severely beaten and wounded. The next morning two men on their way home to Palmyra joined us for protection, raising our party to seven, — namely, two Americans, a Syrian cook, and a negro driver in the carriage, and a soldier and the two Palmyrenes on horseback. Toward evening, after an uneventful day, we came in sight of the mud houses and green orchards of the oasis of Karietein, on a smooth plain four or five miles away, at the foot of low mountains. Not thinking of danger, we allowed the driver to whip up the horses and drive quickly to the village. The soldier galloped along beside us, but the two Palmyrenes remained behind. When we saw them again the next morning, we were shocked to discover that one had his right arm and side bandaged.

"The Arabs are here," he said, in answer to our eager questions. "Last night, after you drove off, we saw them, a great *ghuzzu* [raiding party],

sixty men on camels, each with his mare. They passed within half an hour of Karietein, and that was where I got hurt. My horse was struck in the side. The Arabs are still here. We must wait a few days till they are gone."

We regretted that we had left the Palmyrenes behind, for the Arabs would scarcely have dared attack our whole party close to a village. Moreover, we should have enjoyed seeing the raiders close at hand. We asked more questions, which brought out the fact that, as the Palmyrene's Turkish was even worse than mine, we had misunderstood each other. What he meant to say was that at the time when he saw the approaching Arabs, his horse, which he happened to be leading, became frightened, kicked him in the side, and knocked him to the ground, where he hurt his hand. There was no doubt, however, as to the presence of robbers.

We had planned to leave Karietein at three o'clock and ride half of the waterless fifty miles to El Beida by daylight and the rest in the cool of the night. At noon the three soldiers deputed to accompany us came and begged us to put off our journey. Not that they cared for themselves, they said, or were at all afraid, but solely for our sakes. When we said that we were not afraid, they were at a loss what to answer. Finally, when we seemed bent on starting, they admitted that they were in mortal terror. We compromised by wait-

ing till sunset, and riding the whole distance by moonlight. As we drove out of the village a herd of camels could be seen feeding closely bunched on a hilltop not a mile away. They belonged to the raiders, whose fires we saw behind us for some time; but we were not disturbed.

At the guardhouse of Ain el Beitha, which protects Palmyra on the west, we heard of two other raiding parties which insolently watered their animals from a well under the very noses of the five soldiers. On returning from Palmyra, the two soldiers who then formed our escort were so afraid that we were compelled to go by way of Karietein instead of direct to Homs. We did not follow our outward route, however, but went somewhat south to some ruins among the low mountains which run northwestward from Damascus to Palmyra. After seeing the ruins we found that if we could get the carriage over a spur a mile or more ahead, a detour of six or eight miles would be avoided. One of the soldiers was sent to reconnoitre, but did not return, and we became anxious. After two hours and a half we sent the other to find him. When the two came back in an hour or less, the first soldier looked much disturbed, and there was an empty space in his cartridge-belt. For a while he was uncommunicative, but finally he said: "I got up to the top of the ridge and found that the carriage could go, so I went on to another little ridge beyond,

and found that there the path was too rocky. When I turned back I saw ten or twelve Arabs in the valley below me, and I knew that they were raiders. I hid, and then I was afraid that they had seen me and would climb up another way and catch me, so I got behind a safe rock and fired eleven shots at them. I did not hit anybody, and they went off. Then I hid till just now, when my companion came to the other ridge and I joined him."

Undoubtedly the Arabs were raiders, as he thought; but his action in shooting at them unprovoked was most idiotic. Luckily, to use a somewhat Irish expression, they did not know how many of him there were, and so did not attack him. If he had killed any one, and the tribe had become enraged, it would probably have cost him his life, and might have cost ours. His conduct illustrates the bitter hatred which prevails between the Arabs of the desert and the Turkish government.

A single dry season like 1909 is enough to throw the borders of the desert into disorder. A succession of such seasons throws it into chaos. The dry period, from 1868 to 1874, the worst of recent times, is clearly apparent in the diagram after page 423. The effect of a succession of bad years at that time is well described by Wright, a missionary who lived in Damascus. I shall quote from him at length, adding or changing a

few words for the sake of clearness. "On the 25th of May, 1874," he says, "as we passed out of Damascus we saw green vegetables beginning to make their appearance in the markets. Jaundiced apricots, ripened in the baths, were being eagerly purchased and greedily devoured by the famine-stricken people. . . . We met a few sacks of new barley, artificially ripened, carried on the backs of donkeys into the city; and we saw fields of barley pulled and left to ripen that it might be in time for the famine prices. . . . The next day, northeast of Damascus, on the way to Palmyra, the red plain had been scratched in several places, but the thin ears, blasted with the east wind, showed that, as in the previous six years, the crop of the region was to be a complete failure. . . . The first thing that strikes one on entering Yabrud, a Christian village two days' journey north-northeast of Damascus, is the appearance of the people. The men in this and the other villages roundabout are as a rule tall, well-built, and handsome. . . . The women are tall, red-cheeked, healthy, and comfortable-looking, and though seldom beautiful, they have nothing of the gypsy appearance of the women of the south and east, or of the sickly, waxen complexion of Damascus beauties. . . . At the time of my visit, however, all cheeks were pale enough, and laughter and gladness had departed. I started on entering the mission school at the

pinched and hungry look of the children. . . . Famine was in the district. Five or six bad harvests had followed in succession; madder root, which is here largely cultivated, had become almost unsalable, owing to a German chemist's discovery of a mineral substitute; the flocks of the villagers had been swept off by the Arabs, who had also intercepted their supplies; and the Turks insisted on having their taxes in full, though giving nothing in return. I was assured that there were not ten bushels of wheat in the village of three thousand inhabitants, and the people were living chiefly on wild roots and vegetables. Fifteen of the scholars were on the mountains and in the glens, competing with the goats and gazelles for something to drive away hunger. Only half of the children went on these expeditions at a time, and the fifteen who were in the school were making a meal of bean bread with mint from the stream and rhubarb from the mountain. They were like a flock of hungry kids feeding on clover. . . . Every year the people of these regions go to the Hauran during the harvest. The men reap for wages, and the daughters and wives, Ruth-like, glean after them. This having been an unusually bad year, an unusual number of reapers and gleaners had gone to the Hauran. . . . These poor reapers had amassed seventeen thousand piasters (about seven hundred dollars), and were returning to their starving

families. The Arabs were informed of the easy prey they would find in these unarmed peasants. They waylaid them, and left them hardly a shred to cover their nakedness. The Arabs then swept on unopposed, . . . and making a circuit by Sudud, Hawarin, and Karietein, the last villages desertward to the west of Palmyra, carried off all the stray flocks and donkeys that came in their way."

Wright goes on to tell other sad tales of the suffering of the villagers from the scarcity of food, and from the rapacity of the Beduin. The plunderers actually robbed women of their donkeys, and left the women without a stitch of clothing to find their way home as best they could. On Wright's return from Palmyra to Damascus he ran across a party of Arabs who, within a few miles of him, robbed a caravan conducted by the hardy villagers of Jebel Kalamon. The villagers were bringing provisions for their families from the Euphrates, and were also carrying carpets, tobacco, and other valuable merchandise for sale in Damascus. When attacked by the Beduin, they succumbed only after a long fight. "The marauders," to quote once more, "carried off one hundred and twenty loads of clarified butter, and an enormous number of donkeys, mules, camels, horses, and arms, valued at four thousand pounds. In addition to this, they stripped all the travellers, and left them naked in the blazing desert. They even stripped

the dead. The brothers of the murdered men remained to watch the bodies till an animal was brought to convey them to a village. They succeeded in protecting themselves from the heat by day and the cold by night, with rags from the furniture of a camel shot in the mêlée. The unfortunate men were industrious people, inhabitants of Nebk, Deir Atiyeh, and Rahibey. They were mostly heads of hungry families, paying taxes to the Sultan for protection."

In summing the matter up, Wright says, "That spring, 1874, the Beduin plundered the whole eastern borders of Syria. Caravan after caravan with Bagdad merchandise was swept off into the desert. The British Bagdad post, sacred in the most troublesome times, was seven times plundered, the letters were torn open and strewn over the plain, and the postman, without camel or clothes, was left to perish or find his way as best he could to human habitation. Spearmen, like swarms of locusts from the East, spread over Jebel Kalamon, and having slain the shepherds, and stripped any men and women who fell in their way, drove before them all the flocks and herds. Feeble fanaticism held sway in Damascus, and absolute anarchy reigned in the rural districts. So great was the terror of the peasantry that though they were actually starving, they would not move from their villages except in large armed bodies. Even thus they sometimes

fell a prey to the Ishmaelites. . . . There is no reason why this state of things should be permitted to exist. The military force that year was the same as that with which Subhi Pasha kept the desert in almost perfect order. The Beduin marauders are within easy reach of the government. . . . With anything like protection or fair government, the peasantry of northern Syria would be among the happiest in the world; but for the last ten years, since 1866, they have seen the fruit of their labors swept away by organized robbers, and they have lived in a state of starvation and despair. All who can get away leave for Egypt and for the large cities, and the region is becoming depopulated year by year."

Writers on the East almost invariably conclude, as does Wright, with strictures on the government. The laxness of the Turks, they say, is the cause of periods of lawlessness such as that of the early seventies. Similarly, we are repeatedly told that the weakening of the Roman authority permitted the great influx of Arabs and other barbarians which overwhelmed the empire. Doubtless this is true. We cannot question that the establishment of strong garrisons by Trajan at the beginning of the second century did much to foster peace and to encourage the building of great cities; while the withdrawal of the garrisons exposed the country to devastation. Yet in view of what we have seen as to the effect

of times of drought upon the movements of the Arabs and upon their proneness to plunder, it seems doubtful whether we have not attributed too much to governments and too little to nature. A strong power might for a time resist the movements due to desiccation, but the drain on its resources would be so enormous that no government could long endure it. If Rome in the past and Turkey in later times could have supplied food or work to the hungry children of the desert, the Syrian borderlands would have been protected far more effectively than by soldiers.

Having seen the nature of the desert around Palmyra, and having come to a realization of the devastating effects of even a short period of desiccation, we are prepared to consider the city itself. The approach to Palmyra has been often described, a broad desert plain between two lines of treeless mountains, the one extending eastward from Homs, the other northeastward from near Damascus. The mountains converge toward a narrow opening or valley through which flows all the water of a great triangle, seventy-five miles on a side, and having Anti-Lebanon for its western base. The country is so dry that practically no water ever flows above-ground except in phenomenally heavy storms, but much flows underground; and this supplies Palmyra. As we approached the head of the valley, the plain was dotted with thousands of grazing cam-

els, and soon we saw a hundred dark tents of Aneezeh Arabs beside the wells of Abu Fawaris along the line of the chief aqueduct of old Palmyra. The aqueduct runs underground at first, but soon comes to the surface. We were able to follow its course and mark the carefully hewn stones of which it is built. Following it down the valley between the two mountain ranges, we came upon numerous tall, square towers, varying from twenty to sixty feet in height and honeycombed with sepulchral niches, where the rich Palmyrenes were once laid to rest with their families. To the left, northward, a Moslem castle of the Middle Ages rises from a hilltop as bare of vegetation as the castle walls themselves. Elsewhere the castle would be well worth visiting, but here one scarcely looks at it. At a distance, down the valley, the view opens out, and on the border of a vast barren plain row after row of splendid columns is seen, and the huge mass of the Temple of the Sun, covering an area eighteen times that of the Parthenon.

Compared with other famous ruins of Syria, those of Palmyra are perhaps less artistic than those of Jerash, less picturesque by far than the great rock-hewn remains at Petra, less massive and less carefully executed than the temples at Baalbek; but in extent and in unutterable desolation they are unrivalled. At first one does not notice the modern village and its orchards and

palm trees. In most views of the ruins anything which suggsts life is conspicuously absent. Ruin and desolation reign supreme. The tones of the landscape are dull brown and gray; drifts of wind-blown sand are piled here and there; broken columns, half-fallen walls, and massive stones lie all about; the mountains rise bare on the north and west, while toward the south and east a monotonous desert plain stretches endlessly toward Arabia and the Euphrates, dreary brown except where the white line of the Sebkah, or salt playa, interrupts it some two miles away. Riding on down the broad, glaring valley, — for such it now seems, although from a distance it looks narrow, — the half-fallen towers of death are left behind and the ruins open out before one, — here a line of columns, there an isolated temple, yonder the solid walls of great public edifices and the radiating arches of the splendid portico in the centre of the town, and back of all the huge bulk of the Temple of the Sun, its inner columns and entablature half revealed where the lofty enclosing walls have fallen down.

Of ancient houses or small buildings nothing is to be seen except the stones and dust. The gray mud walls of the squalid modern village became unnoticeable at a distance of a quarter of a mile. The village to-day contains not a tithe, probably not a hundredth, as many people as the ancient city, yet even these few are poor, and find great

TEMPLE AND SEPULCHRAL TOWERS AMONG THE RUINS OF PALMYRA

difficulty in procuring water enough to raise the crops necessary for their support. In the modern village one traverses intricate passages between walls of mud, and enters secluded courtyards, where women, shrieking at the sight of a strange man, throw veils over their faces and run into the houses. From the courtyards one climbs flights of narrow stone steps leading up the outer walls to the tops of the houses, where one clambers over low mud walls separating one flat roof from another. Only thus is it possible to examine the details of the Temple of the Sun, its groups of columns, fine bits of carving, and misspelled Greek inscriptions, with the Palmyrene equivalents in strange, half-Arabic letters. Outside the modern village the ruins are more attractive, for there one wanders unhampered among colonnades and temples and over heaps of rubbish, looking here through an arch and there down a vista, always attractive, always desolate. Drought and death are as all-pervading here as verdure and life at Damascus.

In view of the facts already before us, it seems almost superfluous to question whether the climate of Palmyra has changed. Nevertheless, the ruins afford so clear a refutation of the common contention that the decrease in the water supply at such places is due to human negligence or ignorance, that it is worth while to consider the matter briefly. In ancient times Palmyra was

famous not only for the abundance but for the sweetness of its water; Ptolemy says that in his day there was a "river" at Palmyra, yet to-day the supply is not only scanty, even as measured by the needs of the present few inhabitants, but is highly impregnated with hydrogen sulphide. Eight ancient conduits are known to the Palmyrenes, who have tried to get water from all by carefully cleaning them out and repairing them. The attempt has failed except in two cases, so that now six of the eight conduits are dry; and the other two give sulphurous water instead of sweet. The smaller of these has much the better water, but it is little used. Such a weak fluid with so little taste or scent is good only for women, not for men, say the Palmyrenes.

There can be little doubt that man's carelessness and folly have something to do with the manifest decrease in the amount of water, but these things can scarcely explain the enormous change which is all too apparent. Neither can the change be due to earthquakes, as has been sometimes asserted. Duhn says that more or less severe movements of the earth took place in this part of the world, although not necessarily at Palmyra, in 434, 1089, and 1759 A. D. These dates seem to have no connection with the most critical periods of the history of the city. The occasional writers who appeal to earthquakes in explanation of the fall of Palmyra appear to do so merely as

a makeshift to get rid of the necessity of postulating changes of climate.

The real cause of Palmyra's present sad condition seems to be lack of rain. In the autumn of 1872, when the springs were at their lowest, Cernik found no water except "a very unattractive little brooklet" [quellbachlein]; the smaller spring was dry. In 1889 Hill found much better conditions. "All modern notices of the place which I have read," he says, "refer to the fact that no fresh water is to be found there, and some express wonder at the ancient prosperity of the Palmyrenes in the absence of this requisite. The guide-books recommend the traveller to bring a supply of drinking water with him, as the stream of sulphurous water, which, till last summer, was alone known in modern times as the source of supply there, is very disagreeable to the taste. We were, therefore, much surprised [in April, 1889] to find that the stream near which our tents were pitched was fresh and pure. It appears that it was only discovered in the summer of 1888, and that we were the first Europeans to see it. It runs only a few feet under the surface of the ground in an old flagged channel." — "The finding of this stream has stirred up the inhabitants to search for more fresh water, and pits were sinking in several places during our visit."

The stream found by Hill was not really new, but was merely a revival of an old aqueduct, —

the one described above as fit only for women's use, in the opinion of the Palmyrenes. The explanation of the rediscovery of the aqueduct is easy. During the rainy season preceding the spring of 1872 the precipitation at Jerusalem, as shown in the diagram after page 423, amounted to 18.5 inches; during the three preceding rainy seasons it amounted to an average of 16.7 inches; and during the ten preceding seasons, to an average of 20.5 inches. During the one, three, and ten seasons preceding the spring of 1889 the precipitation amounted to 35.7, 29.2, and 27.7 inches, respectively. Throughout Syria and all western and central Asia 1872 and the preceding years, as we have seen, were times of slight rainfall and, consequently, of famine; while 1888 was a year of abundant rainfall, and, hence, of abundant crops. When the ground became filled with water by a succession of comparatively wet years previous to 1889, the water supply at Palmyra became relatively abundant and palatable. It is only reasonable to suppose that when Palmyra was one of the world's great cities, there was rain enough, even in the driest years, to render the water supply abundant and fresh.

Having concluded that the climate of Palmyra has changed in the pulsatory fashion of other parts of Syria, and that even brief periods of aridity such as that of the early seventies lead to great confusion, we are prepared to discuss

the difference between Palmyra and Damascus and the cause of the sudden rise of the fallen Queen City. Let us first investigate the effect of an increase in rainfall upon Damascus. To-day that city has plenty of water to support one of the largest cities in the Turkish Empire. If the city should grow, sufficient water could readily be procured by lessening the amount devoted to gardens and farms. In the environs practically all of the land capable of easy irrigation is now cultivated. Even if there should be more rain than at present, and if the Abana and Pharpar rivers should be larger than now, as they doubtless once were, the city would be but little influenced. The Meadow Lakes, which are nothing but marshes lying east of the city, would become genuine lakes. Indirectly the size of Damascus might be increased by the growth in agricultural communities and in trade in the surrounding parts of the desert.

With Palmyra the case is different. Her water must always have been derived from underground sources rising to light in the springs for which the place was once famous. The water for the springs must have been gathered from an extensive area of comparatively level ground. In such a region evaporation has opportunity to remove a large part of the rainfall. The rivers Abana and Pharpar of Damascus come from the snows of Hermon. They gather in high cool

regions, and flow rapidly downward in narrow valleys. Hence they lose little by evaporation. The ratio of their size to-day to their size in the past is probably almost the same as that of the rainfall of the two periods. The waters of Palmyra, on the contrary, have been diminished, not only by the decrease in rainfall, but by an increase in evaporation which may remove many times as much water as that which now reaches the ruins. In spite of this, however, there is no reason to believe that the water of Palmyra was ever so abundant as that of Damascus. The almost complete silence of history as to the place previous to the Christian era opposes such a view. Palmyra never was great until she suddenly became a commercial metropolis. Damascus, no matter what vicissitudes might befall her, was always assured of a certain degree of importance, because her life was so closely connected with that of the rich regions of Coele-Syria, only two days' journey to the west. Palmyra, on the contrary, even in the best of times, was always separated from the rest of the world by a girdle of desert. She became great only when, in spite of her isolation, she temporarily was closely bound to the better watered lands on either side of her.

The sudden rise of Palmyra to fame took place in the third century, at a time when scores of other desert cities fell into ruins. In other respects Palmyrene history agrees exactly with

expectations based on our theory of climatic pulsations. Why, then, in this one case should there be such glaring discrepancy? This question can best be answered by a careful study of the outline map after page 423. Up to the first century of the Christian era the road from Syria through Palmyra to Mesopotamia was but one of many. Far to the south the direct route from Egypt and from southern Palestine to Mesopotamia gathered to itself many branches at the rock-hewn city of Petra and ran straight across the desert to the oasis of Jauf, and then to Bagdad on the one hand and the Persian Gulf on the other. No ordinary trading caravan, as we have seen, could possibly follow this dry route now, and no European is ever known to have done more than follow it a short distance. The Arabs themselves prefer to go by a longer route lying to the north near Jebel Druze. Farther north other similar roads once crossed the desert from Syria to Mesopotamia. From Bosra in the Hauran one ran past the castle of Sulkhad, perched on a volcanic cone, to Jauf and then to the other Bosra on the Persian Gulf. So important was this route that the western Bosra was often called Little Damascus, and the Romans thought it worth while to build one of their famous roads straight to Jauf. According to the Arabs, the road, which they call a railroad now that they have seen the new line of track and embankment to Medina,

runs perfectly straight, not even turning aside to pass the sources of water which alone now make it possible for the Arabs to use this route. No caravans can pass this way, for east of Jauf, so far as can be learned from the Arabs, the desert is impassable. Yet in the Roman days it was so well provided with water that caravans did not even need to turn aside an hour or two to the sites which alone are now provided with wells.

Still farther north another route led from Damascus straight east to Bagdad. During the last century it was used for a while by the British government as the shortest post route to India, but commercial caravans could not possibly employ it. Neve, one of the few Europeans to traverse it, says that his chief memory is of the rough voice of the cameleers waking him roughly again and again from a brief rest in the sand with the gruff remark, "Come, we must be going. The camels must get to water." North of this route lies that through Palmyra, still passable, but with dry stretches of such length that many caravans prefer to go through Aleppo by the most northern of all the Syrian routes. Here, then, in the space of four hundred miles from Petra on the south to Aleppo on the north, we have five routes across the Syrian Desert. The southern one is utterly impassable so far as caravans of the ordinary kind are concerned; the second is equally impassable in its eastern half;

the third is passable provided a caravan is willing to run the risk of killing most of its animals; the fourth, by Palmyra, is passable, but not good; and the fifth, through Aleppo, is easy.

In the days before Palmyra rose to prominence all these five routes were practicable. They divided with one another the great trade which united the East with the Roman Empire. Then during the early centuries of the Christian era the southern routes were abandoned one by one. Other reasons for their abandonment have been suggested, — for instance, the opening of communication by sea, — but in the light of what we have learned as to the changes of rainfall in this part of the world, it seems almost certain that they were given up because the supply of water became scanty. Caravan leaders found their animals finishing the journey weak and sick from heat and thirst, or dying on the road from long dry marches and from scarcity of fodder. The Arabs, too, doubtless began to make more raids than of yore, for their flocks must have been suffering for lack of grass, and the opportunities for legitimate profit in connection with the caravans were growing less. Accordingly the traders began to take the more northern roads, longer, but much better supplied with water and forage. Thus the southern roads gradually fell into disuse, part of the old trade going by sea and the rest by more northerly routes. In the

third century of our era practically all the trade from the East was concentrated upon the Palmyra road, while Petra and Bosra had already begun to sink into insignificance, and even Damascus felt the strain. With such an increase in its trade Palmyra could scarcely fail to grow both in population and in wealth. Public works arose, built from the rich coffers of the merchants, — some, like the colonnades, for ornament, and others for very practical use, as in the case of the aqueducts and conduits, which the growth of the town, as well as the decrease in the size of the springs, must have made peculiarly necessary.

When the desert grew more rigorous and even the Palmyra road became difficult, all trade languished and the town decayed. When there came a time of more propitious rainfall in the fourth and fifth centuries, once more Palmyra began to revive; but not for long, because the desert again grew dry. The prolonged and intense aridity of the seventh century proved the utter ruin of Palmyra, as of all the borderlands of the desert. Then the Arabs began to move as never before. Not merely one tribe like the Sherarat, whose tradition has come to our ears, but scores were in the clutches of hunger. Their camels were dying of thirst, their sheep and goats failed to rear young. All was dismay in the black tents of the Beduin. Raids on a scale hitherto unknown were the only resource. Palmyra and

many another dwindling town must have suffered final extinction at their hands. Then came the word of Mohammed. To people in dire distress any new idea appeals powerfully. Perhaps they had been sinning, and the one God preached by the prophet was angry and had sent the curse of drought. Already they had begun to move out into the greener lands about them when the seer fled from Mecca to Medina, and began to preach war. The new religion served as a rallying point. Hitherto tribe had fought with tribe for the water and pasture of their own land and its fringes. Now Mohammedanism gave unity. Arab ceased to devour Arab. Under the banner of the Prophet the tribes united to overwhelm the world. Religion was an essential part of the great Mohammedan dispersion. Hunger and drought were equally essential.

The last stages in the history of Palmyra are like those of the rest of eastern Syria. After the dry epoch of the seventh century the normal period of recovery set in when the rainfall once more increased. It came to an end with another dry epoch, in the first half of the thirteenth century. We know almost nothing of this particular epoch. The evidence of it is avowedly slight. Yet it too, like its predecessor, was accompanied by great movements of desert peoples. In those days Jenghis Khan and his hordes burst forth from central Asia, and with incredible speed

spread to all quarters of the continent. The succeeding moist epoch, being brief and unimportant, seems to have had little effect upon Palmyra. It came to an end with the close of the fourteenth century. Then again, barbarians poured out from the desert, this time under Tamerlane. It can scarcely be accidental that at each time of increasing aridity the people of the drier parts of Asia have surged forth from the deserts in devastating hordes. In the intervening epochs of increasing rainfall, order has prevailed, the nations whose prosperity was based upon agriculture and commerce have grown great and powerful, and civilization has advanced. So it has happened in the past; so it may happen in the future. Apparently this is the law of history. Prolonged drought necessitates migration, invasion, chaos. An increasing supply of water in regions previously dry fosters wealth, culture, and the growth of great empires. Damascus illustrates the effect of abundance of water. Safe at the foot of her life-giving mountains, she still sits among her gardens, throned in queenly state. Palmyra, far out in the parched desert, has been a prey to the vagaries of climate, and has risen or fallen according to the abundance of nature's rain. To-day she sits mourning in the sand, a fallen queen among the shattered fragments of her glory.

## CHAPTER XVI

### CLIMATE AND HISTORY

In discussing the climate of the past we seem, perhaps, to have wandered far from Palestine. Yet Palmyra, the most remote point of our investigations, lies less than two hundred miles from the Sea of Galilee. All our conclusions as to climatic pulsations are as true of Palestine as of the surrounding regions. Our knowledge of the condition of the country in early times, however, is still deficient. We have seen that before the days of Christ the rainfall, during certain periods at least, was more abundant than to-day; while since that time marked fluctuations have taken place with profound historic results. It must now be our aim to ascertain whether fluctuations occurred also previous to the beginning of the Christian era. Hitherto we have relied largely upon the evidence of archæology and physical geography, using historical evidence merely as confirmatory. By so doing we have come to the conclusion that climatic variations have played an important part in determining the course of history, and that a specific type of climatic change is followed by certain broad historical consequences. In endeavoring to reconstruct the

climate of early historic times, previous to about 600 B. C., we are hampered by the fact that archæological evidence for the most part fails us. Geological evidence still remains, stronger even than in later periods. In a sense, however, it is less helpful, for we are not yet able to date it with any accuracy. Hence our geological reasoning must assume the form of general conclusions and probabilities. For dates we must turn to history. Accordingly in this chapter we shall employ a type of reasoning different from that of previous chapters. We shall assume the essential truth of our main conclusion as to the relation of changes of climate to history, namely, that adverse changes induce migrations, invasions, wars, and distress, and that favorable changes lead to prosperity and the expansion of civilization. We shall not make this our sole line of reasoning, but shall use it as confirmatory, or as the best proof attainable in the present state of knowledge.

Before turning to the consideration of possible pulsations and their historic significance, it will be well briefly to review the evidence already before us as to the general prevalence of relatively moist climatic conditions previous to the Christian era. The apparent populousness of Palestine, and we may add of Greece, points to this conclusion. So, too, do the statements of Herodotus and of Alexander's generals as to the

Caspian Sea and the Sea of Aral. The Book of Joshua, as interpreted by Clermont-Ganneau, indicates that when it was finally edited, perhaps six hundred years before Christ, the Dead Sea stood much above its present level. In 674 B. C. Esarhaddon, one of the greatest Assyrian kings, led an army from the Euphrates River across the whole desert of Arabia to the remote south. By reason of the absolute absence of water in vast areas, such a march would to-day be utterly impossible. All these facts, and others not here mentioned, make a strong case in favor of the theory that from about 1100 B. C. or a little later, down to the time of Christ, comparatively moist conditions prevailed most of the time. Still earlier we find a suggestion of similar conditions in Babylonian and Egyptian accounts of the passage of trade and armies across regions now desert, or of the cutting of wood among mountains which now, if rightly identified, are treeless. Naturally the evidence is scanty, but it is borne out by geology. Three thousand or more years before Christ the Dead Sea must have stood at the level of some of its old strands, — possibly one of the higher of the minor strands, or even the lowest major strand two hundred and fifty feet above the present level. We may therefore conclude that throughout the period of ancient history the climate of Palestine and the neighboring lands was in general relatively moist.

This conclusion by no means precludes the existence of epochs of relative aridity. Scientific probability is in favor of their existence. The glacial period is generally agreed to have consisted of a succession of cool, moist epochs alternating with warm, dry epochs. The post-glacial stages are believed to have consisted of similar alternating epochs of shorter duration. The old belief was that these climatic fluctuations came to an end before the beginning of history, but this is a purely arbitrary assumption. In all geological ages strata deposited upon the land in relatively dry regions show a constant alternation between coarser and finer materials or between highly and slightly oxidized beds. This seems to indicate that climatic pulsations of some sort have prevailed with great frequency throughout geological time. In the absence of proof to the contrary the weight of probability favors the theory that fluctuations similar to those of the glacial stages, but of less intensity, continued into historic times. If it be true that since the time of Christ fluctuations have taken place on a scale such as we have inferred, the probability of their occurrence before that time is increased. Finally, the strands of the Dead Sea indicate that fluctuations have occurred throughout the entire interval since the glacial period. The amount of fluctuation has not been uniform at all times. On the contrary, it appears to have decreased

steadily. During the past twenty or thirty thousand years the earth, so to speak, has been on the down grade from the crest of the last huge climatic wave of the glacial period. The descent has been broken by the smaller waves of the glacial stages. These in turn have been diversified by still smaller waves such as the pulsations of historic times; and finally the surface has been rippled by insignificant climatic variations having a period of thirty-five, eleven, and even three years. Wherever we turn, change, not uniformity, seems to be the rule.

The argument from probability is valuable but not conclusive. If the climate of the three or four thousand years previous to Christ has fluctuated, evidence of it must surely be found somewhere. In the years 1903 and 1904 it was my privilege to be a member of the Pumpelly Expedition sent by the Carnegie Institution of Washington to Transcaspia. There we carried on excavations in the ancient mounds of Anau near Askhabad, the modern capital. Unmistakable evidence disclosed the existence in past times of five successive cultures or civilizations, separated by long intervals of depopulation or depression. The last interval occurred early in the Christian era, but cannot be dated exactly. It probably was coincident with the dry epoch of the third century after Christ, and may have lasted until the seventh century. In his report Mr. Pum-

pelly does not discuss this particular interval, since it falls at a date much later than that upon which the work of the expedition mainly centred. By a most ingenious process of reasoning, however, he comes to the conclusion that the other similar epochs were the result of periods of aridity long before the opening of our era.

Scientific probability, on the one hand, and the phenomena of Transcaspia on the other, point to pronounced pulsations of climate previous to the Christian era. Events since the time of Christ indicate that epochs of exceptional aridity are characterized by great migrations and invasions such as those of the barbarians who overwhelmed Europe, the Arabs under the unifying influence of Mohammedanism, the Mongols under Genghis Khan, and the Tartars under Tamerlane. If both these conclusions are correct, ancient history as disclosed in the Bible and in Babylonian, Assyrian, and Egyptian records ought to show epochs of well-nigh universal depression and invasion alternating with epochs of high prosperity. Famines and a diminution of trade in dry regions should precede or accompany the times of invasion: wealth, culture, commerce, and the expansion of the power of the great nations into regions now desert should occur in the intermediate periods.

With this in mind let us briefly review the chief events of ancient history in the lands surround-

ing Palestine. The chronology of early times is so doubtful, that we cannot proceed with much certainty until about 1700 B. C. In the following pages I shall adopt the conservative dates given by King for Babylonia, and by E. Meyer and Breasted for Egypt. In the haze of the distant past the first indistinct shapes to attract attention are the nations of Egypt and lower Mesopotamia. Beside the Tigris and Euphrates the people of Sumer and Accad were civilized perhaps four thousand years before our era. A thousand miles to the west a cultured Egyptian people of unknown origin lived beside the Nile. We know little of either of these ancient races; for in their day writing appears to have been unknown. Enough that they were relatively civilized and prosperous. Therefore we infer that the climate of their times was not undergoing any special change for the worse. During the fourth millennium before Christ changes took place in both countries by reason of the influx of foreigners. Semites, apparently from the Syrian desert, although possibly from other quarters also, gradually forced their way into Mesopotamia. They do not appear to have come suddenly, or in great numbers at any one time. Little by little, however, in spite of repeated setbacks, they Semitized the people of Sumer, imposing upon them a new speech and a new type of civilization. During the same period the Dynastic race entered Egypt and founded the first dynasty.

The Dynastic race seems to have come from the south, probably by way of the Red Sea, and possibly from southern Arabia. Their coming does not appear to have been with violence. They prevailed through their higher culture and their knowledge of the art of writing, rather than by force or numbers. We cannot tell why either the Semites or the Dynastic race migrated, and it is useless to speculate. Changes of climate may have been one of the factors, but we have no evidence one way or the other.

During the rule of the first three dynasties Egypt was finding herself, so to speak. Then under the famous fourth, fifth, and sixth dynasties, there ensued a period of great prosperity and activity. According to Breasted these ruled from 2900 to 2475 B. C., according to Lehmann from 3220 to 2550, and according to Petrie 4000 to 3335. In view of such widely differing estimates, the correlation of Babylonian and Egyptian history is almost impossible. If, however, we accept the dates of Breasted and King, the two latest authorities, it appears that at this same time Babylonia also was rising to prosperity and power. At first, small city states existed practically independent of one another, but later they were grouped more closely under the kings of Kish, Agade, Ur, and Lagash. King Lugalzaggisi of Lagash, about 2800 B. C., expanded his rule across the desert to Syria, as may be read to-day

upon the fragments of a hundred vases which he dedicated to "Enlil, King of Lands," in the god's own temple at Nippur. This in itself does not prove that the desert was less dry than now. It is hardly probable, however, that conquests could have been carried from the mouth of the Euphrates to the Mediterranean in those early days, unless the crossing of the desert were much easier than at present. A hundred and fifty years later, or about 2650 B. C., the famous Sargon I, king of Agade, four times invaded distant Syria. If then, as now, the desert had been full of plunderers, and the road through Palmyra had been the most southerly that an army could traverse, even with great suffering, we may well question whether this would have been possible. About 2630 B. C., Naram-Sin, the son of Sargon, conquered Magan, which appears to be eastern Arabia, a region where an army would now perish of thirst. Approximately 2450 B. C. peace reigned so profoundly and commerce was so well developed that Gudea, the Viceroy of Lagash, in Lower Babylonia, was able to bring materials from all quarters to build the temple of the god Ningirsu. He transported cedars and other trees from the Amanus and adjacent ranges near the northeast corner of the Mediterranean Sea; brought dressed stone from Lebanon, alabaster or some such material from Anti-Lebanon, and copper from Hermon; he imported "ushu" wood for boards,

and gold for adornment from western Arabia, and wood of some rare species from eastern Arabia. Supplies of varied nature came from other regions. Part were transported by boat; part came by land across regions where to-day caravans hasten timidly in fear of plundering Beduin, or do not travel at all for lack of water. That a petty provincial ruler should thus be able to gratify his taste for architecture shows how high was the state of culture, and how peaceful and easily traversed the desert four and a half millenniums ago.

Prosperity could not endure forever. It lasted until approximately 2450 B. C., when it gave place to three centuries of depression. In Egypt this was the period of the seventh to the tenth dynasties, a time almost devoid of monumental records, and therefore presumably an epoch of retrogression. At the end of the period we find among the kings of Egypt the short-lived tenth dynasty which reigned but forty-three years. The first king bore the name Khyan, another was called Uazed, and a third Yaqeb-her, equivalent to Jacob-god. The names are all Semitic, and indicate an invasion from the desert. The native Egyptian dynasty was driven to the south, whence it reappeared on the expulsion of the invaders. The "Wall of the Princes" along the northeast frontier may date from this epoch. Like the Great Wall of China, the Pictish wall

of England, or those of Aboskun and Derbent on the Caspian, it was designed to keep out invaders. No one knows exactly when it was built, but it figures frequently in history.

In Babylonia, also, if the chronologists are correct, this period seems to have been characterized by an invasion from the desert. A new type of Semitic names makes its appearance. A contract-tablet contains a name exactly equivalent to the Hebrew Abiram, while one of the kings is Abishua. Others bear foreign, that is, Semitic names, occasionally translated into the Sumerian tongue, which still was the language of common use. Other facts pointing in the same direction must be omitted. Evidently some widespread cause was at work in Arabia, forcing the nomadic population to move out, not in one direction, but in all; for Palestine and the fertile lands of South Arabia seem to have been similarly overrun. In Babylonia, just as in Egypt, the native dynasty was driven out, and foreigners usurped their place. Then Elam, the rival of Babylonia, took advantage of the weakness of her sister-state, and for a space usurped her power. No direct evidence connects this Arab migration with a climatic pulsation, but no other adequate cause has been assigned.

The distress occasioned by these Arab invasions was followed by a period of prolonged prosperity, lasting from about 2200 to nearly 1750

B. C. Little is known of it, but it was certainly widespread. Not only did Babylonia and Egypt make great progress, but Crete at the same time reached its highest state of culture. The Babylonians appear to have ruled over a wide area, which at first included Palestine. In Egypt the eleventh and twelfth dynasties made little attempt at foreign conquest. In both of the great countries of the ancient world the period was one of peaceful internal development. Babylonian culture spread far and wide, and dominated Syria. Egypt also was in close touch with parts of Syria, and intercourse was easy and frequent. The famous tale of Sinuhe illustrates the relation of Egypt to her neighbors. Fleeing in royal disfavor, Sinuhe took refuge in Syria, probably in southern Palestine. He was received most cordially by the local prince, and lived for years in the land of his adoption, with a princess as his wife. Finally in his old age he returned with full pardon to his native home. He tells his strange story as a modern author might, dwelling on the habits of the people whom he met, and not sparing to mention his own good deeds.

From 1700 onward the records of the past are fuller than hitherto, and the estimates of chronologists more harmonious. Here for the first time we come upon evidences, not only of invasions from the desert, but of other changes which would naturally result from a serious diminution

in rainfall. From the dry plateau of Persia on the east, or perhaps from deserts still more remote, the non-Semitic Kassites, akin probably to the Tartars and Turks of later days, invaded Media, Elam, and Babylonia, and established a dynasty. From the barren plateaus of Armenia, or Asia Minor, the Mitanni, fore-runners of the Hittites, descended to northern Mesopotamia, and there founded a kingdom. In Egypt at this same time great internal dissension prevailed, and civil strife was so common that sixty kings ruled in a hundred and twenty-five years. Then, finally, external disaster overwhelmed the peaceful valley of the Nile. "In the time of King Timaus," says the native chronicler Manetho, as quoted by Josephus, "it came to pass, I know not how, that God was averse to us. And from the east there came unexpectedly men of ignoble birth, who had the boldness to make an expedition into our country and easily subdued it by force without a battle. And when they had put our rulers under their power, they afterward savagely burnt down our cities and demolished the temples of the gods, and used all the inhabitants in a most hostile manner, for they slew some and led the children and wives of others into slavery."

These invaders were the Hyksos or Shepherds, who crossed the eastern frontier where the Prince's Wall should have held them in check. "The fearful apparition of this host," to quote

the summary of Cormack, "a people coming from unknown regions, strange of speech, uncouth in appearance and bloody in act, dismayed the passive Egyptians. It was not greed of warlike glory, not even the prospect of choice plunder, that prompted the invasion, but a motive far more terrible. The strangers were a landless people who sought a new home. From afar they had made choice of Egypt, a land of peculiar felicity; they had counted the cost, and arranged their plan of action. To appropriate the chosen seat, it was necessary to expel or destroy the existing occupants."

The Hyksos did not come as warriors. They brought their wives and children, and drove before them flocks and herds. It was they, indeed, who introduced the horse into Egypt. They came as did the Sherarat tribe twenty-three hundred years later in the days of Mohammed. The Sherarat passed through to Tunis. If they had attempted to stay in Egypt, they doubtless would have fought as savagely as did the Hyksos or as did the followers of Islam, thrust out by drought from the desert.

The migrations of the seventeenth century before Christ and the seventh of our era are so much alike that we are led to believe that they may have arisen from similar causes. Our knowledge of the Hyksos, however, is too slight to allow of any positive conclusion. We are still in doubt

as to the date of their arrival in Egypt, although the time of their departure is fairly well fixed. Nor do we know their race. Formerly they were supposed to have been of Arab stock from the desert. Lately, however, Breasted has advanced the theory that they were a mixed body of adventurers, led perhaps by Hittite invaders from the north. The majority in any case were probably Semites. Perchance the Hebrews were one of the tribes who came with the Hyksos, for the ancestors of a part of the Israelites apparently entered Egypt at about this time. This, however, is pure speculation. The great outstanding fact upon which attention must be focused is this: the period centring about 1700 B. C. appears to have been a time of great disturbances. Internal dissensions were the rule at home, while invasions overwhelmed all the more settled lands, including Babylonia, the upper Euphrates region where the Mittani settled, Syria, and finally Egypt. Such widespread movements must have been due to some deep-seated cause. Is this to be looked for chiefly in political, or in physical changes, or in both? Doubtless great political changes took place, but were they primarily the cause or the result of the manifest unrest which finally expressed itself in great migrations and invasions?

For at least a hundred years, and probably still longer, the Hyksos held their place in Egypt. Then they moved out once more, expelled by the

revival of the native races, or attracted back to the desert by renewed conditions of abundant water and pasturage. They did not all leave Egypt in haste or sudden fear apparently, for some took with them their cattle, and perhaps returned to nomadism. Many, perhaps the majority, remained in Egypt and became amalgamated with the Egyptians, but a remnant went forth to wander as of old.

For two hundred years following the expulsion of the Hyksos, that is, from about 1580 to 1380 B. C., Egypt once more prospered. Her sudden rise to power at this time is comparable with the remarkable recovery of Syria between the dry epochs of the third and seventh centuries. Under Thotmose III, Egypt extended her sway through Syria to the Euphrates near Aleppo. There, strange to say, the king hunted elephants, shooting one hundred and twenty, so he boasts in the account of his conquests. In the course of his campaigns the Egyptian leader passed through Palestine again and again along the great road up the Philistine coast and south of the Sea of Galilee. On the borders of Esdraelon he fought one of his greatest battles, at Megiddo, where the Syrians attempted to check his conquests. No Hebrews had yet appeared upon the scene, but their day was close at hand. Even then, in all probability, the clans which later became the Israelites were in the desert not far from Pales-

tine. At the same time a powerful Kassite dynasty ruled in Babylonia. It might have been great, had not its lustre been dimmed by the superior achievements of Egypt. We do not know whether caravans passed directly from one country to the other, for the conquerors who wrote inscriptions cared little for such matters. We do know, however, that Egypt, Syria, and Babylonia were united by trade of the briskest description across regions which now are desert.

Down to about 1400 B. C. prosperity continued to be the rule. Then came the first mutterings of a devastating storm of invasion unequalled in history, or equalled only during the Dark Ages in Europe and the Mohammedan outburst in Asia. From the confusion Greece and Rome were born, but the greatest result was the Aramean migration, one wave of which cast forth from the Arabian desert the little tribes of the Hebrews to find a refuge upon the hills of Palestine. Fortunately the precious Tell el Amarna tablets preserve a full account of the beginnings of the great turmoil. We cannot trace the story in full. Revolts and raids prevailed in Syria. The Hittites from the north forced their way down as far as northern Palestine. The Egyptian governors and officials in Syria were put to direst straits. They appealed to the Pharaoh in Egypt, but succor came not at all, or else in driblets and too late to avail. A people called the Khabiri,

perhaps the Hebrews, appeared with the Arabs as participants in the petty invasions which harassed Palestine and Syria from end to end. Between Egypt and Babylonia trade disappeared completely. No caravan could possibly withstand the raids which the hungry desert folk made throughout Arabia. Egypt had no help for her dependencies. She herself was threatened by uprisings in Nubia. Deep poverty afflicted her. Religious dissensions rent the country and led to civil war. In other regions equal distress prevailed. The kingdom of Mitannia was overthrown in northern Mesopotamia by Hittite invaders from the neighboring highlands. The Mitanni, themselves, forced from their homes in the north, came into conflict with the Assyrians on the east, while the Arameans of the desert probably scourged them on the south. The Phœnicians experienced an impulse which drove them forth from their narrow strip of mountains to colonize North Africa and the Mediterranean islands as never before.

In the midst of the distress and chaos a brief lull preceded the final storm. About 1330 B. C., according to the monuments, the shattered rule of Egypt was reinstated in Palestine. Then came the reign of that famous monarch Rameses II. He restored Egypt to its old position. He held it firm against the Empire of the Hittites, which had grown great in the north. Down to about

1250 B. C. civilization maintained its own. Then came the last great crash. About that date famines played an important part in international affairs. In a time of scarcity, Merenptah, king of Egypt, went so far as to send grain to Syria for the relief of his Hittite allies. The mention of this fact is highly significant in view of what follows. Soon after, in the fifth year of his reign, the Libyans of North Africa and the "peoples of the coasts of the sea" combined to invade Egypt. A great migration of the races of Italy, Greece, and Asia Minor was in progress, induced by a movement from regions farther north or east, a movement which finally brought the Dorians into Greece. At this time Israel is first mentioned in Egyptian inscriptions. Some of the tribes who went by this name were hovering on the outskirts of Palestine ready to settle a few years later. Some were probably in Egypt.

Other events agree with the famines and the universal migrations in suggesting extreme drought. About 1250 B. C. an official report addressed to King Merenptah states that permission was given to certain Edomites to pass the Egyptian frontier. The report runs thus:—

"A further matter for the gratification of my lord: We have permitted the Bedawi tribes of 'Aduma (Edom) to pass the fortress of King Merenptah in Thuku (Succoth) to the pools of Pithom of King Merenptah which are in Thuku,

so that they may obtain food for themselves and for their cattle in the field of Pharaoh, who is the gracious sun in every land."

This peaceful admission of the nomads to find pasturage for their cattle is supposed to have been a matter of policy on the part of the Egyptians. The country had just emerged from one of the worst wars for centuries, a war that racked it to distraction. The Libyans who had invaded the country in great force from the deserts west of the Nile at the time of the famines had been repulsed only with greatest difficulty. Now, by permitting the Edomites to enter within the wall and obtain food for their cattle, the government apparently thought to add to its fighting resources a warlike clan hostile to the Libyans. The peaceful admission of the nomads from the east, however, did not end the matter. Tribe after tribe pressed in without the consent of the Egyptians, and threw the land more and more into distress. Religious dissension continued to add to the bitterness of life in Egypt. Or perhaps because life was so bitter, religious differences assumed a more sombre aspect. The last straw was added when the Arabs joined hands with the Libyans and the nations of the Ægean, and the three rivalled one another in devastating the little strip of fertile land shut in between the deserts and the sea.

For fifty years Egypt was in dire confusion.

Then better days appeared. The first sovereign to enjoy them was Rameses III, who began to reign 1204 B. C. In his annals the king recounts the conditions prevalent in the days of his predecessors.

"The land of Egypt was brought low; the prosperity of former years had passed away. The people of Egypt were without a guide. The kingdom was divided by the princes; they slew one another, both noble and mean. Afterward the times were more evil; in years of famine arose Arisu, a Syrian, as ruler over them, and compelled all the land to pay him tribute. Joining many companions with himself, he despoiled all who had gathered riches. In like manner as the people, the gods were treated; the appointed offerings in the temples were neglected and withheld."

The mention of famine once more is suggestive of prolonged aridity. The position of Arisu resembles that of Joseph in the Biblical narrative. The two stories prove that at this time strangers from Palestine and Syria were numerous in Egypt, and that famine was common. We cannot here attempt to unravel the relation of Egyptian history to the accounts of the Patriarchs and the Exodus. It is enough to point out that according to the narrative in Genesis famine was the reason for the original migration of the Hebrews to Egypt. They came as did the Edomites

mentioned in the report to Merenptah. They went forth in better times to wander a while in the desert, and then to settle in Palestine. The history of the thirteenth century before Christ, like that of the Hyksos period four or five centuries earlier, seems to demand some special, far-reaching cause. Famines, internal dissensions, official corruption, increasing unruliness on the part of the nobles, the collapse of the reigning dynasty, and terrible invasions from both the east and the west cannot happen purely by accident. Still less can this be the case when similar conditions prevail not only in Egypt, but in the other lands round about. Back of all these factors there would seem to lie some other. We cannot prove that in the thirteenth century before Christ a period of relative drought, prolonged, perhaps, for generations, gave rise to famines and severe economic distress leading to political unrest, migration, and invasion, together with many other evils. We can merely point out the possibility.

The tumult of the Aramean period of invasion died slowly. For two centuries Egypt lay prostrate, divided into a northern and southern kingdom. Babylonia for a century was afflicted by further invasions of Elamites and Arameans. Only about 1100 B. C. did Assyria once more begin to rise. Between the great nations of the Nile and the Euphrates Palestine still seethed with

moving tribes. The Hebrews were taking possession of their heritage in the slow and interrupted fashion revealed by the books of Joshua and Judges. Moabites, Edomites, Midianites, Hebrews, and Philistines contended for a share in the land. "In those days there was no king in Israel: every man did that which was right in his own eyes." This was a necessary stage in the recovery from the shock of the preceding century. Gradually conditions improved. The story of the travels of Wen Amen in Syria about 1080 B. C. shows that Egypt was awakening to new life, but was still weak and divided. Wen Amen was sent by the ruler of southern Egypt from the capital at Thebes to purchase timber in Syria. His kingdom was unknown to the Syrians, because the northern part of the Nile country, the delta with its capital at Memphis, was Egypt according to their ideas. They treated him shamefully, permitted him to be robbed, and showered him with reproaches because the gold in his hand was scanty compared with that which the ancient Pharaohs were wont to send three hundred years before. In Assyria renewed, but transient prosperity was signalized by the extensive conquests of Tiglath-pileser I, who invaded Syria about 1100 B. C. The Assyrian power did not last long, for Babylonia, its ancient rival, came to the fore, but one country or the other of Mesopotamia held high the old traditions. In

Palestine, in corresponding fashion, the kingdom was founded by Saul and extended by David. At its flower, Solomon grew rich by acting as a middleman between the inhabitants of the Nile and Euphrates valleys. Controlling, as he did, the greatest trade route of the age, it is not surprising that he should have imported horses from Egypt and sold them to the kings of the north at a good price. "And the horses which Solomon had were brought out of Egypt, and the king's merchants received them in droves, each drove at a price. And a chariot came up and went out of Egypt for six hundred shekels of silver, and a horse for a hundred and fifty; and so for all the kings of the Hittites, and for the kings of Syria, did they bring them out by their means." This must have been a time when the tribes of the desert were at peace by reason of abundant water and forage. Otherwise Solomon could never have maintained a profitable commerce through the port of Ezion-Geber at the head of the Elanitic Gulf of the Red Sea, nor could the Queen of Sheba have come up so easily from the far south of Arabia.

Phenomena of many kinds have led us to conclude that from the time of David, 1000 B. C., to that of Christ, climatic conditions were on the whole moister than now, and favored the spread of civilization. Various events, however, point to the possibility of periods of relative aridity in the ninth, the seventh, and perhaps the second cen-

turies. Aside from the famines in the days of the Patriarchs and of Ruth, none are mentioned as of great importance until the time of Ahab in 870 B. C. The annals of Ethbaal, one of the strongest kings of Tyre, also record a famine at approximately the same period. There may be danger of carrying our conclusions too far, but it is noticeable that at this time the Arabs and the little nations on the borders of the desert fell into unrest. For instance, soon after Ahab's death in 853, the Moabites and Ammonites, together with the Meunim, who appear to be the Mineans of South Arabia, invaded Judah. Other invasions followed. About 845 B. C. "Jehovah stirred up against Jehoram the spirit of the Philistines, and of the Arabians that are beside the Ethiopians: and they came up against Judah, and brake into it, and carried away all the substance that was found in the king's house, and his sons also, and his wives."

The history of Moab illustrates what may possibly be the effect of a period of desiccation at this time. In the early accounts, such as the stories related in the first books of the Bible, including Ruth if that book was written before the exile, Moab figures as an agricultural region inhabited by a mild people who tilled the soil and were rich in flocks. At the death of Ahab, a change apparently ensued. Moab had been tributary to the kingdom of Israel, according to the account in

the Book of Kings, paying annually one hundred thousand rams and the same number of wethers with their fleeces. It now revolted, and the Moabites raided their neighbors several times. Finally Moab was utterly routed in the battle of Kir-hareseth or Kerak, as the place is now called. The enemies of the Moabites "beat down the cities, and on every good piece of land they cast every man his stone, and filled it, and they stopped all the fountains of water, and felled all the good trees." It would be a mistake to lay much stress on the mention of the stopping of the fountains. Nevertheless the phrase is worthy of notice. I have heard Arabs, Persians, and other orientals speak of springs and fountains as having been stopped by invaders, when, as a matter of fact, they had become dry from natural causes.

Another feature of the history of Moab lends color to the hypothesis of a somewhat dry period lasting from the time of the famines in the days of Ahab, about 870 B. C. to approximately 750. In order to avoid the danger of warping the facts to fit a theory, I quote from Smith's Dictionary of the Bible. "Hitherto," that is, previous to the battle of Kir-hareseth in 840, "though able and ready to fight when necessary, the Moabites do not appear to have been a fighting people. — But this disaster seems to have altered their disposition, at least for a time. Shortly after these events we hear of 'bands' — that is, pillaging,

marauding parties — of the Moabites making their incursions into Israel in the spring, as if to spoil the early corn before it was fit to cut. With Edom there must have been many a contest. One of these, marked by savage vengeance, recalling in some degree the tragedy of Kir-hareseth, is alluded to by Amos, where a king of Edom seems to have been killed and burnt by Moab. — In the 'Burden of Moab' pronounced by Isaiah, we possess a document full of interesting details as to the condition of the nation at the time of the death of Ahaz, king of Judah [719 B. C.]. More than a century had elapsed since the great calamity. In that interval Moab had regained all, and perhaps more than all of its former prosperity, and had besides extended itself over the district which it originally occupied in the youth of the nation."

Great weight must not be laid upon arguments derived from Moab, for the history of that country is most imperfectly known. The "Burden of Moab" may not be the work of Isaiah, but of some post-exilic author, in which case it applies to a period considerably later than that now under consideration. Moreover, the general character of the climate during the main portion of Israelite history appears to have been distinctly more propitious than now. The situation of Moab, however, is such that aridity, even in a relatively slight degree, would influence it much

more quickly than would be the case with most countries. The ruins of Ziza and the Arab raids which we experienced while travelling there illustrate the matter. The plundering propensities mentioned in the preceding account are just such as inevitably arise under stress of prolonged drought.

The recovery of the Moab a century or more after the time of adversity would be the natural result of a renewal of the former conditions of sufficient moisture. To this time of prosperity belong the final deportation of the people of Samaria, during the great expansion of Assyrian power under Tiglath-pileser IV and his successor Sargon. A little later Esarhaddon conquered Egypt and penetrated to the extreme south of Arabia, where he defeated the Mineans. Such extensive conquests would be impossible unless the desert was easily passable. They furnish strong evidence that remote parts of Arabia were then much more accessible than now. At this period, also, trade from Egypt to the Persian Gulf and Babylonia was more prosperous than at any time, except possibly the epoch of expansion about 3000 B. C. after the Babylonian migration and the development of the early dynasties of Egypt.

Under the influence of climatic pulsations the change from prosperity to adversity is usually much more abrupt than from adversity to pros-

perity. Apparently a nation grows gradually under the stimulus of favorable conditions. The more powerful expand at the expense of the weak, but all advance more or less in unison. In the deserts the nomads increase in number, and their flocks attain great proportions. The crest of a climatic wave is reached. The settled nations, dwelling in the best agricultural lands, feel no distress. The change is too slight to trouble them. They proceed with their plans for expansion and growth. The nomad, on the contrary, feels the difference at once. At first it does not disturb him greatly unless the population has attained an uncommon degree of density. Soon, however, he comes into conflict with his fellow nomads, for all move to the best pasturage and most permanent waters. Conditions become similar to those under which the herdsmen of Isaac strove with those of Abimelech in Gerar after a time of famine. The weaker party is driven out, and begins to wander in search of new pastures and springs. Conflict follows conflict. At length the tribes which have often been driven forth grow desperate. Impelled by despair they pour forth in wild hordes upon the nations roundabout. This has happened time after time. It appears to have happened in the middle of the seventh century, just after Esarhaddon's great conquests. As early as 660 a slight advance of Indo-Germanic tribes from the dry region to the north began to

trouble Assyria. Soon war arose on every hand. By 640 the Arabs were moving outward. In 624 B. C. the Indo-Germanic tribes broke over the civilized world in the great Scythian invasions. They penetrated to Syria, Palestine, and Egypt. For twenty-eight years they terrorized western Asia, and then disappeared. Meanwhile the Nabateans had come forth from inner Arabia. When the world once more took account of its condition, the Nabateans, who later made Petra their capital, possessed the outskirts of Edom; the Medes had conquered Nineveh; the Persians were about to establish an empire under Cyrus, and the sceptre of the world, after two thousand years, had passed from the Semites of Arabia to the Aryans of central Asia.

The Nabatean migration was the last of any moment before the Christian era, so far as Palestine was concerned. In the second century, however, there may have been a slight return of aridity. The observations of Stein upon the Great Wall of China, together with distress in Greece and Syria, suggest this conclusion. If such a period of aridity occurred, it probably soon gave place to somewhat more favorable conditions, centring near the time of Christ. From the seventh century before Christ to the seventh century after, each successive epoch of moist conditions seems to have been somewhat less pronounced than its predecessor. That is, a great

climatic wave seems to have risen from about 1200 B. C. to 700 B. C. with slight interruptions, and then to have fallen to 600 A. D. with epochs of especially rapid fall followed by recovery at subequal intervals. The whole course of climatic pulsations from the earliest times to the present is illustrated in the accompanying figure. The line

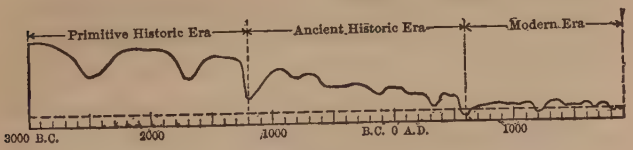



FIGURE 7.

Approximate Climatic Fluctuations of the Historic Period.

representing climate may also be interpreted as representing to a certain extent the fluctuations of civilization. As given here, it makes no claim to finality. The researches of a single year may cause the shifting of a curve a century or more, or may smooth out some minor curve and add another. Yet in its main features I believe that it will stand.

Three eras make up the tale of history. Three great pulsations characterize the course of climate during the same period. The eras and the pulsations agree in time. The first era comprises the hazy past when Egypt and Babylonia were at their greatest. It ends with the chaos of the Aramean migrations. The second spans the life of Israel in Palestine, the Greeks in their

islands and peninsula, Italy in the most western of the great lands of antiquity, and Assyria and Persia far to the east. It also ends in chaos with the migrations of the Barbarians and the Mohammedans. The lands which were greatest during its continuance lie farther north than those of the preceding era, perhaps because the northward movement of the climatic zones of the earth had changed the location of the physical conditions most favorable to human development. The last of the three eras has seen the rise of great nations in lands still farther north. Already it has endured twelve eventful centuries. We dare not prophesy how long it yet may last. Perhaps it, too, may end in drought and mighty movements of the races, unless by growing knowledge we avert the ills that hitherto have been man's heritage.

# CHAPTER XVII

## ANCIENT PALESTINE

PALESTINE, in its eventful history, epitomizes the age-long struggle between the stern logic of physical law and the aspiring idealism of man. Born of the desert amid thirst and hunger in the painful travail of the Aramean migrations, the Hebrew race was at first as clay in the hands of nature. Many of the Chosen People were rejected because they chanced to find a resting place on the borders of the land, where the turmoil of the desert broke over them, or the example of other nations weaned them from their own ideals. Others, after a longer trial, succumbed to the roads which brought the wealth and wickedness of the great world to their doors. Only the tribe of Judah remained true to itself, and that by no virtue of its own. Its small inheritance, though close to the rush of busy life, was secluded by its height and form. Most fortunately it was never so fertile as strongly to arouse the greed of jealous neighbors. There for a thousand years and more the Hebrews evolved their great ideas, influenced, but never overwhelmed by the pulsations of the world around them. At the close of their long day, as at the

beginning, we find them in a land like that of the present, yet so different that it was almost another country.

We have seen how Palestine as a whole is partitioned into strips running north and south, and how these are gridironed into smaller divisions by lines of earth movement running east and west. We have found that the two most important physical features of the country are the Judean plateau, elevated, secluded, infertile, and difficult to traverse, and the lowland of Esdraelon and Jezreel, which caused the most important lines of ancient communication to traverse northern Samaria and southern Galilee. With respect to climate we have gained some conception of the marked contrasts between adjacent districts. We have also discovered that since the beginning of history climate has been subject to pulsations, although during most of the period of the Hebrews it was distinctly moister than now. There remains one subject of inquiry to complete our picture of the land of Palestine. Are there any indirect ways, hitherto unmentioned, in which changes of climate have caused the country of to-day to differ from that of the past?

Full consideration of the effect of climatic changes would require a volume. We have already seen something of their potency in moulding history through famine, migrations, invasions, rebellions, and wars, on the one hand, and the

restoration of prosperity, on the other. We have studied Palmyra as a cogent example of the consequences of the diversion of trade from one route to another at the behest of rainfall or drought. Increasing aridity, far more than any other cause, has reduced the traffic passing through Samaria to such small proportions that the old trade routes are almost negligible as a factor in the economic and social condition of modern Palestine. To dwell on these matters further might be profitable, but lies beyond our present purpose. We can only suggest two of the many subtle and indirect ways in which climatic changes may transform races. Then we shall conclude with a picture of the most direct of all climatic effects, namely, the condition of the land itself in the past as compared with the present.

Among the possible indirect results of changes of climate, modifications in the character of a race may prove to be of the first importance. The vigor and persistency of the fair races of the north as compared with the inertia and inconstancy of the dark races of the south are well known. Whatever may be the direct causes of this difference, climatic factors such as temperature, humidity, intensity of sunlight, and the presence or absence of stimulating seasonal changes seem to be at its root. They probably do not induce variations in man, but by

natural selection through disease or otherwise they eliminate from each region all save the type best adapted to it, provided always that sufficient time be allowed. The fair, vigorous type has been selected for preservation in the north, the dark inert type for equatorial regions, and intermediate varieties for intermediate regions. In Greece the heroes, as well as the gods and goddesses, are often spoken of as of fair complexion. Among ancient, painted statues, such as those in the museum of the Acropolis at Athens, a large proportion have reddish or yellowish hair. Apparently in the days of Greek splendor the upper classes, at least, belonged to a fair-skinned, northern type. To-day that type is practically extinct, exterminated, in all probability, by the selective force of climate. With such extermination must have gone a modification of the general racial character of the inhabitants as a whole. Probably the fair races were invaders from the north, and would have been exterminated under any circumstances by the new climate to which they came. Granting this, the fact still remains that the process of extermination must have been hastened by the changes of climate which we infer to have taken place. The history of Italy in this respect was apparently like that of Greece. As to Palestine no such assertion can be made. Nevertheless, if such effects were produced in other countries, the

weight of probability favors their occurrence in Palestine. A thousand years of life under the bracing conditions of the Judean plateau, as it was in ancient times, may have eliminated many weak elements from the Hebrew race, and given it a strength far beyond that of the present inhabitants, a strength commensurate with the greatness of its contribution to history.

The selection of one type rather than another to persist in a region is probably in most cases a pathological process. Certain diseases attack specific human types, and sometimes exterminate them. Disease may also modify the character of individuals who survive, weakening the will or embittering the imagination. Malaria is a disease of equatorial and subtropical countries. It prevails somewhat in more northern regions, but not malignantly. Modern research shows more and more clearly that malaria and allied diseases influence not only man's physical being, but his moral and intellectual capacity. Victims of continually recurrent attacks of malaria, in the absence of any specific such as quinine to ward it off, become inert, hopeless, despondent, and sometimes cruel and vicious. The recently discovered hookworm disease is known to sap the energy of its victims, although few die from it directly. Other diseases such as la grippe are coming to be reckoned highly dangerous, not because many of the afflicted meet death, but

because prolonged debility follows each attack. If half the inhabitants of Germany were to suffer from la grippe each winter, the efficiency of that nation would be reduced enormously. Yet only in modern times have we come to a state of knowledge where the prevalence of so mild a disease would find more than an accidental mention in history. To-day malaria is prevalent in the lowlands of Palestine to a dangerous degree, while the highlands suffer somewhat, but not so badly. As to malaria in early times in Palestine we know little. In Greece, however, Jones has shown that the disease probably did not prevail to a dangerous extent until well after 400 B. C., while in Italy it did not become a menace until still later. Apparently, although this is by no means proved, the increasingly subtropical character of the climate of those countries has gradually rendered them a fit habitat for the anopheles mosquito, which spreads malaria. When the disease once became common, afflicting as it does the majority of the children up to the age of puberty, and leaving permanent results such as the enlargement of the spleen, it must have greatly weakened the moral fibre of the Greeks and Romans. In similar fashion the decay of Palestine may be due in part to the introduction of malaria or other insidious diseases which flourish under present climatic conditions, but not under those of the past.

From these indirect and as yet highly theoretical results of the change from the climate of the past to that of the present, we turn to one which can be easily measured. The most manifest direct result is a great decrease in the productivity of the land. Doubtless in favored spots the yield per acre is as great now as formerly, but this is the exception. One needs only to look at the scanty, stunted stalks of many a wheat harvest throughout the country, but especially in the highlands, to be assured of this. With abundant rain the crops of districts where the soil is deep and rich are equal to those of any part of the world. Unfortunately the soil is deep only in the plains. Even there the rainfall is often insufficient for the best growth of the plants. In the hilly portions of Palestine innumerable ancient olive presses, terraces, and walls of fields and vineyards betoken extensive cultivation in places where naked rock now forms well-nigh half the surface, and the rest consists of stony soil only a few inches deep. This condition has often been attributed to reckless deforestation, but if our conclusions as to former density of population are correct, this can scarcely be the true explanation. Quite as often the absence of soil has been ascribed to man's negligence, to his lack of care in repairing walls, filling gullies, or preventing indiscriminate grazing. Doubtless this is often true, but what has occasioned man's

special negligence at certain epochs? May it not be an indirect result of diminution of rainfall? Common experience indicates that when crops fail year after year, when money for taxes cannot be procured and tax-gatherers become extortionate, when poverty prevents the purchase of new tools, and when the cattle must be sold to pay debts, no race, however vigorous, can long maintain a high type of agriculture. Buildings, walls, terraces, and wells inevitably receive less care than formerly, and many fields lie neglected. The young men leave the old homes. Few save the weak or those without ambition remain behind after a generation or two. If nomadic raids harass the country, the population becomes still scantier.

In a land thus neglected the direct effects of aridity at once become apparent. When the Caspian Sea stood so low that the wall at Aboskun was completely above water, presumably early in the seventh century, the climate of western Asia must have been distinctly drier than now. Less than a hundred years earlier it was so moist that Aujeh, now in the desert, was inhabited by people who could afford costly mosaics to adorn the floors of their churches, while far to the north the waterless ruins of Ilandarin were so well supplied with flowing streams that Thomas donated a bath to his fellow citizens. So rapid a change must inevitably

have caused a wholesale diminution of vegetation. Scattered trees in orchards and by roadsides, or groves and patches of forest on hilltops or in narrow untilled valleys, must have died on every hand. Bushes, grasses, and other small plants must have diminished greatly in abundance. Hence, even without man's intervention, denudation was bound to overtake the slopes. Unless held in place by vegetation, soil is everywhere washed from the hills to the lowlands with great rapidity. The burning of forested areas, or the breaking of the cover of vegetation by ploughing, permits the carrying away of soil, but these processes are not a tithe so potent as a change from moist conditions to aridity. The present denudation of the hills of Palestine appears to be the direct result of the difference between the climate of the past and that of the present.

In the time of Christ and earlier, Palestine must have been a most attractive land. Even rugged Judea, although far less rich and fruitful than many neighboring regions, was, nevertheless, full of villages. Beside many of them huge oak trees, like one or two still found around Jerusalem, must have stretched out knotted arms for twenty or thirty feet to shelter from the noonday sun the tired husbandman and the belated woman with her jar of water. When all of the now barren hills were dusky with graceful olive groves,

bright green with vineyards, or yellow with swishing wheat, the broad sunset views westward to the blue sea or eastward to the purple plateaus beyond Jordan must have been as fair as heart could wish. The air must have been full of life and vigor, for even now an evening in June on the breezy plateau is often fresh and cool as April. Farther north the broad vales and fertile hillsides of Samaria, varied by the rocky domes of Ebal, Gerizim, and Gilboa, present an attractive view to-day. In the greener past they must have been still more attractive, although the Samaritans failed to feel their inspiration. Galilee, lacking the breadth of vision of Judea, gloried in beauty of detail, — lovely valleys embowered in greenery where springs broke out and ran purling down to turn the stones of mills and then to water riotous gardens where the green things scarce knew how to cease from growing. The Sea of Galilee must have resembled the Italian lakes. Even now the gardens of the plain of Gennesaret, the brakes of oleanders along the shores of the lake, the occasional groups of trees like those at old Capernaum, and the rich pasturage where the Arabs encamp in crowds at the north end of the lake are as beautiful as one could wish. When half a dozen towns, each of ten or fifteen thousand inhabitants, surrounded the lake, every part of the shores must have been green. As one looked across the blue sheet of water, deep-

sunken beneath sea-level, the view must have been truly enchanting whether eastward toward the smooth skyline of Jaulan, with its symmetrical little volcanoes, westward to the more varied mountains of Galilee, or northward to Hermon and the flat top of Lebanon, then much more snowy than now. The shores are not so bold as those of Garda and the other Italian lakes, but otherwise the scenery must have possessed the qualities which make those sheets of water so famous; and in addition it was blessed with large fleets of ships to lend picturesqueness to the scene. Time fails to speak of the forests of Gilead, the cedars of Lebanon, the harvests of the plateaus east of Jordan, the gardens of Jericho, and the gorges and cliffs around the Dead Sea. In the olden days the psalmist and the prophets were right in their praise of Palestine.

That a land so varied, so peculiar, so beautiful, should have moulded a peculiar people seems natural. Yet something more than merely the land was required to give the world all that has gone forth from Palestine. When nature set her seal of doom upon the country, she touched the physical. She blasted progress, drove men to anarchy and despair, and killed great thoughts and aspirations. Yet the ideas already evolved would not die. Christ took them, ennobled them, and made them the greatest of earthly forces. They were emancipated from material control.

They spread beyond the sphere of desolation, carrying with them life and faith. They proved that little by little the mastery is passing from the lower realms of nature — the material — to the higher realms — the ideal.

# APPENDIX

# APPENDIX

*Ancient Statements as to Meteorological Phenomena in Palestine.*—Popular expressions as to meteorological phenomena are notoriously inexact. The Bible is full of statements as to rain, snow, hail, frost, dew, drought, and other phenomena pertaining to the weather. None, however, are sufficiently explicit to afford distinct evidence as to whether conditions have changed or not. The use of meteorological terms depends largely upon the point of view. If two weeks pass in Ireland without rain, people speak of the drought; whereas in Greece three months may pass without a sign of rain in summer, but no one thinks of calling that a drought in the sense of anything unusual.

Various Biblical expressions have been interpreted as indicating a change in meteorological conditions. For instance, it has sometimes been supposed that the frequent use of the terms "former" and "latter" rain means that there were two distinct rainy seasons. Such a view has no proper foundation, for the same mode of expression is still applicable. The early fall rains and the late spring rains are indispensable to the crops and assume an importance out of proportion to their actual amount. We may safely dismiss the idea of any radical change in the nature of the successive seasons. It is possible, however, that there has been a change in the time of the beginning and end of the rainy season. The only definite statement on this head is found in the Mishna, the earliest of the Talmudic writings. This book was completed not long before 200 A. D. It therefore by no means represents the period of the main prosperity of Palestine. As quoted by Conder (1876), p. 122, the Mishna says that "men shall begin the form of praise appropriate to the manifestation of the Almighty power in the giving of rain — from the first day of the Feast

of Tabernacles [which by reason of the peculiarities of the Jewish calendar may fall at any time from Sept. 20 to Oct. 19]. On the third day of Marchesvan [a date which may vary from Oct. 8 to Nov. 7] shall they begin to pray urgently for rain. If the 17th day of Marchesvan [Oct. 22 to Nov. 21] come without any rain having fallen, then shall they begin to celebrate three days of fasting." If we compare this with a statement by Wilson, who knows Palestine thoroughly from long residence, it appears as if rain was expected somewhat earlier in the first centuries of the Christian era than now. Wilson, in his volume on Peasant Life in Palestine, says: "About the end of October or beginning of November, in favorable years, clouds begin to gather on the western horizon, chiefly at sunset. After a few days the clouds gather more thickly, the roll of thunder is heard, and finally the windows of heaven seem to open, and torrents of rain descend. The Fellahin have seen the storm coming, and all preparations have been made." This suggests that rain is not now expected until a month after the Feast of Tabernacles, at which time it was looked for when the Mishna was written.

Statistics lead to a similar conclusion. According to the tables of Hilderscheid and the recent volumes of the Quarterly Statement of the Palestine Exploration Fund, during the fifteen years from 1845 to 1860 no rain fell at Jerusalem in September, and during only four years did any fall in October. During the forty-five years between 1860 and 1906, for which more accurate records are available, rain fell only five times in September and twenty-nine times in October. In September, however, the rainfall amounted to 0.2 inches or more only twice, and to 0.5 inches only once; while in October it amounted to 0.2 inches or more twenty times, and to 0.5 inches or more eleven times. In each of the five cases where rain fell in September, none fell in October, so that in those years the rainy season did not actually begin, so far as the farmers were concerned, until November in three

cases and December in two. In computing the date of the beginning of the rainy season, it is proper to leave out of account all months having less than a fifth of an inch of rainfall, for this is so small an amount as to be of no use whatever so far as crops are concerned, unless the ground is already moist. Falling on the dry ground, it simply evaporates without making any impression upon vegetation. It is also proper to leave out the September rainfall, even in the two cases where it amounts to more than a fifth of an inch, namely, 0.28 and 0.8 inches. It fell so early as to be of no use to the farmers, and was succeeded in the first case by over a month and in the second case by over two months of drought. It thus appears that during the fifty-nine years, in which records have been kept, the rainy season, from the point of view of the farmer and the writer of the Mishna, has begun twenty-four times in October, twenty-seven in November, seven in December, and once in January. In the majority of the October cases the rain has come toward the end of the month; in five the total amount of rain has been less than half an inch; and the average for all the Octobers counted in the twenty-four is only 0.57 inches.

If we compare these results with the dates given in the Mishna, it appears that the Jews of the early part of the Christian era were told to give thanks for rain at a time when, according to present conditions, no rain worth mentioning had yet fallen in four years out of five. They were told to pray urgently for rain after a date varying from October 8 to November 7. This is the time when the rain is now expected in "favorable" years, although the farmers do not feel disturbed if it comes slightly later, as it generally does. Altogether it seems as if the seasons may have been a little earlier in the old days. The dates of the Jewish calendar, however, vary so much by reason of the intercalary month that there is much possibility of error. Moreover, the time of the beginning of the rainy season varies so much from one part of

Palestine to another that several diverse statements may be correct.

The end of the rainy season is more regular than the beginning. Leaving out of account, as before, the months having less than 0.2 inches of rain, it appears that during the fifty-seven years for which data are available, the rainy season ended five times in March, twenty-nine in April, and twenty-three in May. In four of the cases where it ended in May, however, that month had from 0.28 to 0.56 inches and the preceding month from 0.00 to 0.32, so that the real end of the season was in March. We may therefore revise our figures, and say that from the farmers' point of view the rainy season ended nine times in March, twenty-nine in April, and nineteen in May. The average rainfall during the nineteen Mays was 0.59 inches, and for the twenty-nine Aprils 1.49 inches. In the Mishna the question is asked, "Until what time shall rain be sought?" The answer is, "Until the Passover is finished," which may fall at any time from April 2 to May 2. Rabbi Meir, however, makes the end of Nisan, which is twenty-two days before the last day of the Passover, the end of the time when rain should be sought, since it is said in the Bible, "and he will cause to come down for you the rain, the former rain and the latter rain, in the *first* month." Thus, taking account of the variability of the Jewish calendar and the different interpretations of the Rabbis, the end of the rainy season in the second century was expected at any time from the 10th of March to the 2d of May, which does not differ essentially from present conditions. If any conclusion is to be drawn from the Mishna, it would seem to be that two hundred years after Christ the rainy season probably began somewhat earlier than now and ended about the same time as at present. It may have continued longer, however; the amount of rain may have been greater than now; and the number of dry years may have been less than to-day. In short, the Mishna is not sufficiently precise

in its statements to warrant any conclusion either for or against the theory of changes of climate. Moreover, as is fully set forth in the body of this volume, the climate of Palestine appears to have varied so much from century to century that a statement true for the period one or two hundred years after Christ may be quite untrue for the time of Solomon or of Mohammed.

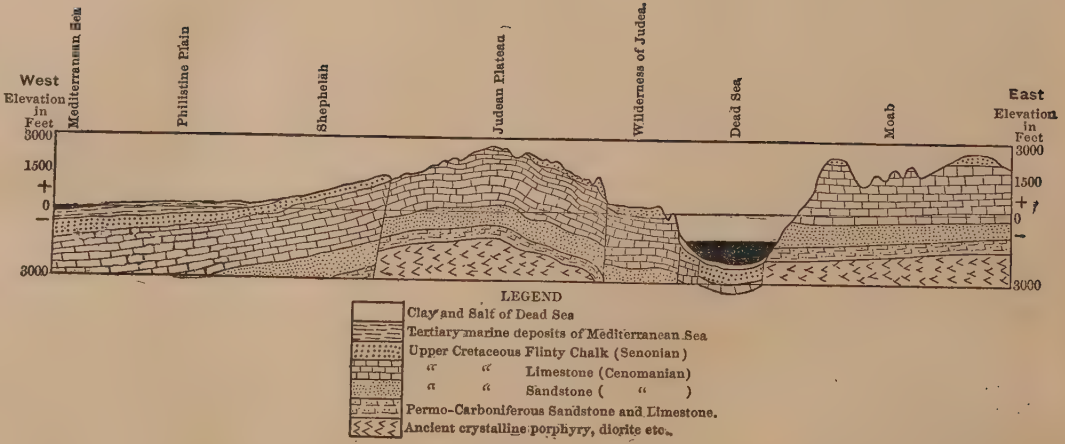



FIGURE 8.

Geological Cross-section of Southern Palestine, through Bethlehem. After Blanckenhorn

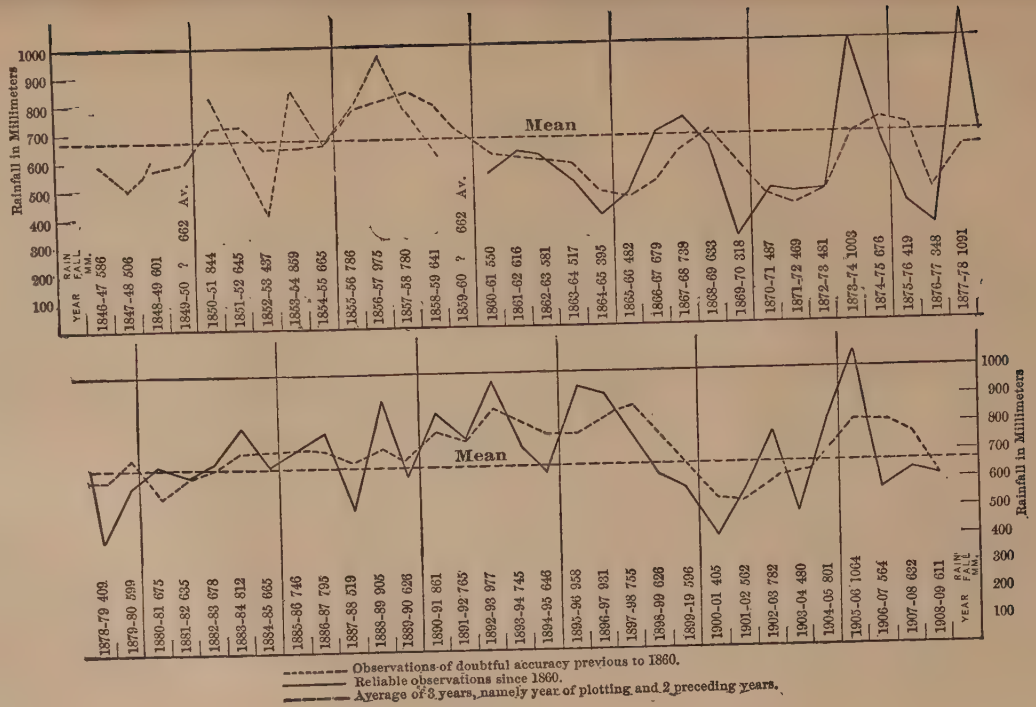
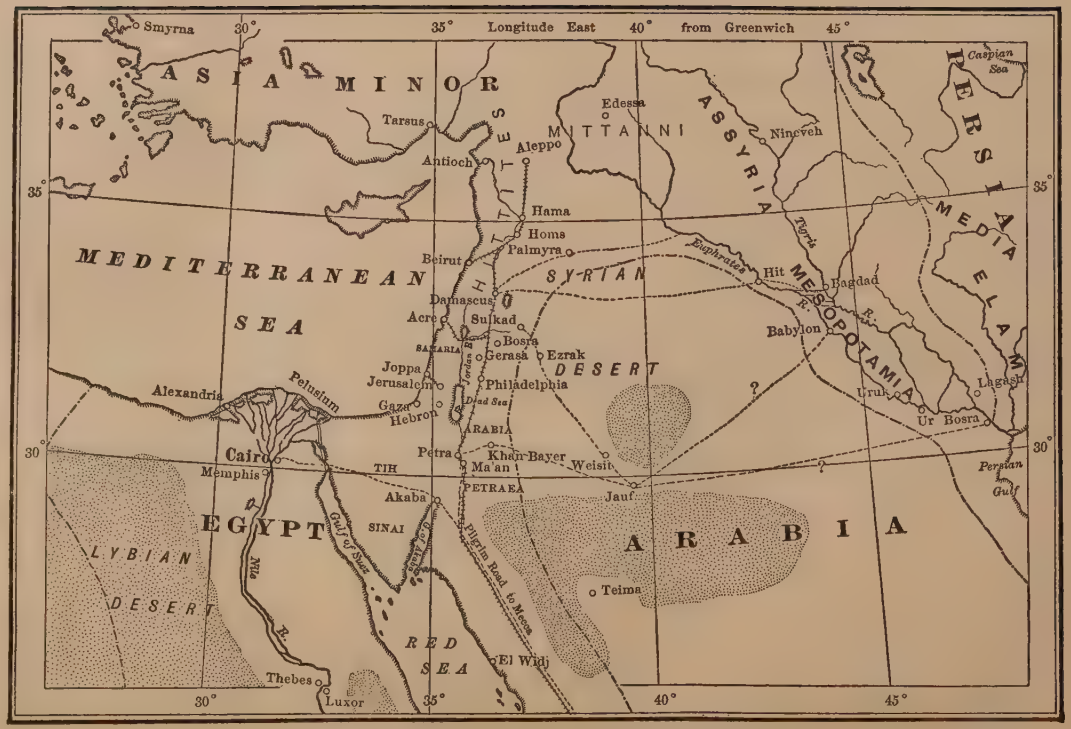



FIGURE 9.

The Rainfall of Jerusalem 1846–1908




SKETCH MAP OF LANDS SURROUNDING PALESTINE

# INDEX OF BIBLICAL REFERENCES


Genesis, 10 : 11, Rehoboth, 121.
12 : 10, Famine in days of Abraham, 393.
13 : 18, Abraham at Hebron ; Machpelah, 111.
14 : 1–16, Raid of Chedorlaomer, 93.
18 and 19, Story of Sodom and Gomorrah, 194–198.
21 : 22–32, Abraham's covenant with Abimelech, 114.
26 : Famine, 393 ; Isaac and Abimelech, 114, 121, 401.
28 : 19, Jacob at Bethel, 139.
29 : 1–10, Wells stopped with stones, 101.
37 : Sale of Joseph, 8.
41 : Joseph in Egypt, famine, 393.
47 : Famine in days of Patriarchs, 393.
Exodus, 12, etc., Conditions of the Exodus, 268–272.
Leviticus, 23 : 40, Feast of Tabernacles, 57.
Numbers, 1 and 2 : Census of Israelites, 262, 263, 270.
13 : First attempt of Israel to enter Palestine, 127.
13 : Spies sent by Moses, 128.
14 : War with Amalekites, 127–128.
25 : 3, Baal-Peor, 211.
26 : Census of Israelites, 262, 263, 270.
Deuteronomy, 11 : 10–12, Irrigation in Palestine, 57–58.
12 : 2, High Places upon the mountains, Petra, 223.
19 : 6, Avenger of Blood, 38.
Joshua, 8 : 1, Ascent to Ai, 141.
13 : 4, Sidonian traffickers, 8.
13 and 14, Division of tribes by Joshua, 164.
14 : 13, Caleb at Hebron, 112.
15 : 14–17, Capture of Debir by Israelites, 112.
15 : 2–6, Boundaries of Judea, 310, 311.

15 : 61–62, Cities of Judean Wilderness, 94.
17 : 14, 18, Forests cut down by invading Israelites, 264, 267.
18 : 15–20, Boundaries of Benjamin, 310, 311.
Judges, 4 : Barak and Sisera, 163, 168.
7 : Conflict with Amalekites, 270.
11 : Story of Jephthah, 227, 233.
13 to 16 : Story of Samson, 69–71.
17 : 6, "No king in Israel," 395.
20 : 24–28, Phinehas and the Ark at Bethel, 139.
20 : 1, "Dan to Beersheba," 114.
Ruth, 1 : Ruth and Naomi, 211.
1 : 1–4, Moabites in time of Ruth, 397.
2 : 14, Ruth and Boaz ; Parched corn, 142.
I Samuel, 3 : 20, "Dan to Beersheba," 114.
9, 10, and 11, Founding of kingdom by Saul, 396.
13 : 5, Israelites at Michmash, 140.
13 : 19–22, Recourse of Israelites to Philistines for blacksmiths, 61.
14 : 48, War of Amalekites with David and Saul, 128.
17 : David and Goliath, 71–73.
22 : 1, David's flight to Cave of Adullam, 73.
29 : 1, Saul and Jonathan at Jezreel, 161.
II Samuel, 2 : 11, Hebron as David's capital, 111.
3 : Ishbosheth, 227.
5 : 5, Extent of Kingdom under David, 396.
8 : 2, Moab as tributary of Israel, 397–398.
18 : Absalom's rebellion and death, 27, 227, 231.
19 : 34, Going up to Jerusalem, 17.
24 : 1–10, David's census, 263.
I Kings, 4 : 26, Solomon's trade in horses, 396.
5 : 6, Sidonian traffickers, 8.
9 : 11–14, Solomon's sale of villages to Hiram, 164, 167.
9 : 26, Trade at port of Ezion-Geber, 396.

10 : 1–10, Queen of Sheba, 396.
10 : 28–29, Solomon's trade in horses, 396.
18 : 2, Famine in time of Ahab, 396.
18 : 19–40, Elijah on Mount Carmel, 157, 158.
21 : Ahab, Jezebel and Naboth, 8, 158.
II Kings, 3 : 4, Mesha and the Moabite tribute, 199, 212.
3 : 24–25, Battle of Kir-hareseth, 398.
4 : Elisha and the Shunammite woman, 158.
5 : Naaman and the Abana river, 341.
15 : 29, and 18 : 9–11, Deportation of Samaritans, 400.
I Chronicles, 29 : 25, Extent of kingdom of David and Solomon, 25.
II Chronicles, 1 : 9, Extent of kingdom of David and Solomon, 25.
1 : 16–17, Solomon's trade with Egypt, 396.
9 : 28, Solomon's trade in horses, 396.
13 : 8, Golden Calf of Jeroboam at Bethel, 140.
20 : Invasion of Judea by Moabites in time of Jehoshaphat, 93.
21 : 16, Invasions of Judea by Philistines, 397.
22 : 1; 26 : 7, Invasions of Judea from desert, 38.
28 : 3, Valley of Hinnom, 83.
32 : 9, Movement of armies in Philistine plain under Sennacherib, 25.
Song of Solomon, 1 : 14, Beauty of En-Gedi, 100.
Isaiah, 9 : 1, Galilee of the Gentiles, 164.
10 : 9, Samaria and Heathenism, 31.
19 : 23–24, Trade routes from Egypt, 30.
15 : The Burden of Moab, 399.
33 : 9, Bashan as an example of wealth and accessibility, 226.
Jeremiah, 5 : 24, Former and latter rains, 419.
32 : 7–12, Anathoth, the home of Jeremiah, 152.
50 : 19, Bashan as an example of wealth and accessibility, 226.

Hosea, 6 : 3, Former and latter rains, 419.
7 : 1, Wickedness of Samaria, 173.
Amos, 1 : 1, Amos in Tekoa, 84.
2 : 1–3, Moabite wars with Edom, 399.
4 : 1, Kine of Bashan, 243.
Joel, 2 : 23, Former and latter rains, 419.
Matthew, 2 : 13–15, Jesus' journey to Egypt, 170.
3 : 13–17, Baptism of Jesus, 315–316.
4 : 15, Galilee of the Gentiles, 173.
15 : 21, Jesus' journey to Tyre and Sidon, 170.
16 : 13, Jesus' journey to Cæsarea Philippi, 170.
19 : 1, Jesus in Perea, 228.
19 : 13, 14, Jesus blessing the children, 228, 232, 233.
20 : 18, Going up to Jerusalem, 17.
23 : 37, Journey of Jesus to Jerusalem, 170.
Mark, 7 : 31, Jesus in Decapolis and Perea, 176.
Luke, 19 : 28, Journey of Jesus to Jerusalem, 170.
John, 4 : Jesus and the Samaritan Woman, 28, 136–137.
7 : 50–52, Pharisees and Nicodemus, 163.
Acts, 1 : 19, Field of Aceldama, 83.
9 : 36–43, Peter at Joppa, 54.
21 : 2, Phœnician traffic, 42.

# INDEX OF NAMES AND SUBJECTS


Aaron and Moses, 128.
Abarim, Mts. of, 201.
Abdeh, population of, 127.
Abdul Hamid II, 210.
Abdullah, 93, 151.
Abimelech, covenant with Abraham, 114; and Isaac, 401.
Abiram, 383.
Abishua, 383.
Aboskun, wall at, 322, 329, 332, 412.
Abraham, 195; covenant with Abimelech, 114; at Hebron, 111.
Absalom, 27, 231; flight of, 227.
Abu Fawaris, 359.
Abu Khalyun, ruins of, 134.
Abulfeda, cited, 340.
Acacia trees, 192.
Accad, 379.
Aceldama, 83.
Acre, 51.
Addison, cited, 340.
Adullam, Cave of, 73.
Ægean Races, Invasion of Egypt, 391–392.
Africa, animals of, in Shephelah, 78.
Agade, 380.
Agriculture, ancient, of Negeb, 129–135; in Judea, 15, 83; past *vs.* present, in Palestine, 282; in Syria, 286; precariousness of, in northeast Syria, 287.
Agrippa I, inscription of, 240.
Ahab, 8, 397.
Ahaz, 399.
Ahmed, horse-boy, 88.
Ai, 141.
Aidel Ma (Adullam), 73.
Ain Farah, 152.
Ain Feshkah, 91.
Ain Jidi (see En-Gedi).
Ajalon, Vale of, origin of, 81.
Ajalun, Mts. of, 231.
Akaba, Gulf of, 182.
Akeldama (Aceldama), Field of, 83.
Akka, 167.
Alexander, 269.
Allegheny Plateau, compared with Judea, 154.
Almonds, 60.
Alpheios, floods of, 330.
Alps, compared with Lebanon, 33.
Amalekites, war with, 127, 128.
Amman, 279 (see Philadelphia); ruins of, 294, 295.
Ammon, 233.
Ammonites, invasion of Israel, 397; invasion of Judea, 93.
Amos, 84, 399.
Anau, excavations at, 377.
Anathoth, 152.
Anderlind, cited, 254.
Aneezeh Arabs, 359.
Animals in art, of Shephelah, 78.
Ankel, cited, 249, 265, 267.
Anthony and Palmyra, 338.
Anti-Lebanon, upheaval of, 23.
Antioch, 286.
Apameia, 286.
Appalachian structure of Gilead, 229, 233; of Samaria, 150.
Aqueducts at Palmyra, 359, 362 ff.
Arab raids, 92, 102, 126, 215, 276, 277, 298, 302, 398; near Ghor, 189–191; near Palmyra, 346–348, 355–358.
Arabah, 24 (see Ghor and Jordan).
Arabia, ancient conquests in, 400; dry periods in, 330–332; former trade in, 273; invasions from, 37; Roman Province, 336; trade routes in, 159.
Arabia Petra, ruins in, 270–271.
Arabian Desert compared with California, 22.
Arabs (Beduin), agriculture of, 119; attempts to render sedentary, 122; fields of, 74; of Ghor, 217; hospitality of, 212; in Judean wilderness, 85; movement in dry years, 113; quarrels with villagers, 97; under Roman rule, 126.
Arad, ruins of, 97.
Aral, Sea of, 322, 333.
Aramean migration, 389.

Archæologist, observations of, chapter xiii, 283 ff.
Architecture in North Syria, 284; in South Syria, 285.
Aridity, effect upon soil, 411–413; periods of, 328, 330; relation to migration, 387, 391–394; of Shephelah, 98.
Arisu, 393.
Arnon River, 193.
Art, Egyptian in Shephelah, 78.
Aryans in Assyria, 402.
Asia Minor, climatic changes in, 321.
Asochis, plain of, 169.
Assyria, Indo-Germanic invasion of, 401, 402; in Twelfth Century, B. C., 394.
Assyrian campaign in Syria, 45.
Aujeh, 104, 329, 412; crops at, 132; ruins at, 122–123; population of, 127.
Aurelian, war against Palmyra, 336, 339.

Baal, worship on Carmel, 157.
Baal-Peor, 211.
Bab-el-Wad, Wadi Ali, 82.
Babisca, 291.
Babylonia, early history of, 379 ff.; trade routes to, 30; in Twelfth Century, B. C., 394.
Bagdad Post, 356, 368.
Baku, caravan-serai at, 323, 333.
Bananas at Jenin, 144; in Jordan Valley, 33.
Baptism of Jesus, 315–316.
Barak, 163.
Bashan, 29, chapter ix, 226 ff.; geological structure of, 226, 234; hospitality in, 235; scenery of, 230; villages in, 235.
Bathing place of Jordan, 315, 316–318.
Baths, Roman, in desert, 289–292, 295; ruins of, 319–320.
Beaches, 304–310 (see Strands).
Beans, in Shephelah, 60.
Beduin (see Arabs).
Beersheba, 104, 113–118, 282; crops at, 131; gardens at, 125.
Beisan (see Beth-shean).
Beirut, 51, 63.
Beit Jibrin, 95; caves of, 73, 75–78.
Beni Atrieh, Arabs, 92.
Beni Na'im, village, 97–98, 141.
Beni Sakr, Arabs, 212.
Benjamin, bounds of, 312; of Tudela, 340.
Bethany, location of, 83.
Bethel, Jereboam's Golden Calf at, 140; history of, 139.
Beth-hoglah, 311–314; robberies at, 189.
Bethlehem, David at, 71; location of, 82.
Bethsaida, 178.
Beth-shean, roads through, 160.
Biblical sites, identification of, 315.
Birain, population of, 127.
Birds, 300; at mouths of Jordan, 185.
Bitumen, 188.
Bkaa, 24.
Black Sea, connection with Caspian, 322.
Blacksmiths, early, 61.
Boatmen, at Jaffa, 52.
Boats, canvas, on Dead Sea, 92, 186.
Boaz, 142.
Bordeaux Pilgrim, 317, 318, 328.
Bosra, 278; baths at, 290; ruins of, 241–242, 292–293; trade routes from, 277.
Boundaries of Juda and Benjamin, 310–312.
Breasted, on Egypt, 379 ff.
Bridges, dry, 288.
British Post to Bagdad, 368.
Bronze Age of Israelites, 61.
Buldur, Lake, strands of, 321.
Burak, bridge at, 288.
Butler, Prof. H. C., cited, 283 ff., 319, 334, 336.
Buttauf, Plain of, 169.

Cactus, 56, 58.
Cæsarea, harbor of, 51.
Caleb at Hebron, 112.
Calendar, Hebrew, 420–422.
California, compared with Palestine, 21, 25–26, 35.
Camels, of Arab raiders, 347–348; at Palmyra, 35–38; procession of, 301; in wilderness of Judea, 94.
Capernaum, 178.
Caravan trade, influence of, 172–173.
Carmel, 21, 50; colonies in, 57; description of, 156–158; geological structure of, 156; origin of, 28; roads around, 160.
Carnegie Institution, 377.
Carruthers, D., cited, 275–277, 331.

Caspian Sea, fluctuation of, 321–323, 327–328.
Cauliflowers, 83.
Cave dwellers in Gilead, 232.
Caves, of Edrei, 236–240; in Shephelah, 73, 75–78; near Sodom, 197.
Cedars of Lebanon, 45.
Census, David's, 263; Joshua's, 263, 270.
Cernik, cited, 340, 363.
Chaldea, trade routes to, 159.
Chalk of Shephelah, 144.
Charcoal burners in Gilead, 231.
Chedorlaomer, 93.
Children, and Jesus, 232; of Druses, 243.
Chorazin, 178.
Christ (see Jesus).
Christianity in Negeb, 122; introduction to Shephelah, 77.
Christians, early in Shephelah, 73, 76, 77.
Chronology of Egypt and Babylonia, 379 ff.
Churches in Negeb, 123.
Circassians, 240; at Amman, 294–295; at Jerash, 279, 282.
Cisterns in Negeb, 110.
Citron, 57.
Cleopatra, 338.
Clermont-Ganneau, cited, 310, 313, 315, 317, 375.
Climate, changes of, 39, 188 ff.; dates, 319–327; diagram of, 403; effect on civilization, 400–401; effect on Palmyra, 365–372; in Galilee, 178–179; hypothesis of deforestation, 254; hypothesis of progressive change, 255, 319 ff.; hypothesis of pulsatory change, 256, 319 ff.; hypothesis of uniformity, 253–254; in Moab, 206; in Negeb, 129–135; at Sodom, 197; synchronism with history, 6, 7, 373.
Climate, of ancient Palestine, chapter xii, 249 ff.; cycles of, 253; and history, chapter xvi, 373 ff.; of Palestine, degree of change in, 258–261; of Palestine, main features of, 256–258; relation to complexion, 407–409; sub-tropical character of, 34; theories of, 249–256.
Coast, drowned, of Phœnicia, 50–51; uplifted, of Palestine, 51–52.
Coastal Plain, of Philistia, 79; Origin of, 149.
Coffee among Arabs, 213.
Colonnades, Greek or Roman, 123; at Jerash, 280.
Colonists, Jewish, 57.
Columns, fluting of, 76.
Commerce, ancient, 269.
Complexion, and climate, 407–409; of Druses, 244.
Condor, cited, 249, 265, 266, 419.
Constance, Lake, compared with Galilee, 32.
Contrast between Shephelah and Judean Wilderness, 95–99.
Coptos, trade routes to, 278.
Cormack, cited, 386.
Counterfeiters in Jerusalem, 116.
Cradles, 60.
Cranes, 300.
Craters in Leja, 246.
Crete, height of culture in, 384.
Crops, of 1909, 133; failure of, in Negeb, 130–132 (see Agriculture).
Cruelty to animals, 106.
Crusaders, conquest of Moab, 199; relation to Druses, 244; in Syria, 45.
Crustal movements, 23, 27.
Cucumbers, as fruit, 100.
Cuesta of Shephelah, 80.
Cultivation, ancient, 112.
Cycles of climate, 253.
Cyprus, seen from Lebanon, 48.
Cyrus, 402.
Cyrus River, 322.

Dahariyeh, 112.
Dahna, bridge at, 288; dry spring at, 289.
Damascus, compared with Chicago, 171; compared with Palmyra, 337 ff.; contrasted with Palmyra, 342; description of, 343, 344; history of, 340–342; water supply of, 365–366.
Dan and Beersheba, 114.
Daniel, the Russian, 316, 319, 327, 332.
Dates of climatic epochs, 290–291.
David, census of, 263; extent of kingdom under, 25; extension of kingdom, 39; flight to Gilead, 227; and Goliath, 71–73; at Hebron, 111; war with Amalekites, 128.
Dead Sea, ancient expansion of, 303 ff.; boats on, 186; compared with Californian lakes, 22, 26; de-

posits of, 108; expansion of, 255; fault of, 24; fluctuations of, chapter xiv, 303 ff., 375; former level of, 102–107; recent changes of, 185; salinity of, 181, 193; scenery of, 183–186, 191–194; soundings of, 325; water of, 187–189; western escarpment of, 89.
Debir, 112; limit of cultivation, 135.
Decapolis, 235; roads through, 160.
Deforestation, hypothesis of climate, 254, 411.
"De Gloria Martyrum," 317.
Depopulation, during drought, 302; and misgovernment, 210.
Depression of Phœnician coast, 63.
Dera'a, 236.
Derbent, wall at, 322, 330.
Desert, of Ghor, 218; menace of, to Palestine, 98
Deserts, cause of, 86.
Dew, in Plain of Sharon, 60; in Shephelah, 75.
Disciples of Jesus, 136.
Disease, effect on character, 409.
Dishonesty among Fellahin, 96.
Dissection of Palestine, 149.
Divan, 212.
Dog River, 44.
Dorians, migrations of, 391.
Dothan, 8; roads through, 159.
Dragontown, in China, 333.
Drainage, ancient, of Palestine, 146.
Dress, of Arab women, 236; of Judean peasants, 13; of women in Philistine Plain, 59; of women of Samaria, 9.
Drought, in 1909, 207, 300–302; in Seventh Century, 331; effect upon raids, 348–350, 352–358; effect upon Arabs, 190.
Druzes, 240–246; complexion of, 244; dress of, 242; origin of, 244; quarrels of, 244, 245.
Duhn, cited, 362.
Dynastic race in Egypt, 379, 380.

Earthquakes at Palmyra, 362.
Eastern Plateau, 24, 26, 27.
Ebal, Mt., 10, 155.
Ed Damieh, 229.
Edom, 199 ff.: compared with Moab, 216; with Utah, 220; escarpment of, 105–107, 111; geological structure of, 220; separation from Judea, 104.
Edomites, at Hebron, 111; in Egypt, 391, 392.
Edrei, caves at, 236–249, 301.
Egypt, early history of, 379 ff.; missionaries from, 77; trade from, 8; trade routes from, 28, 156 ff.
Egyptian art, 78.
Elah, Vale of, 71; origin, 81.
Elam, 164; rise to power, 383; trade routes to, 159.
El Aujeh (in Samaria), 141.
El Bara, 291.
El Beida, near Palmyra, 351; Tombs of, near Petra, 221.
Elchi, 222.
Electric cars in Damascus, 341.
Elephants in Syria, 388.
Eleutheropolis, 73 (see Beit Jibrin).
El Gharara el Kubla, 246.
El Ghuttar, cave of, 197.
El Hesy, ruins of, 74.
Elijah, at Carmel, 157, 317.
Elisha and the Shunammite, 158.
El Kubad, 67.
Emigration in times of drought, 357.
En-gannin, 159 (see Jenin).
En-Gedi, 93–94, 99–103.
England, size compared with Palestine, 19.
English, honored by Druses, 241, 245.
En Nukra, 234 (see Bashan).
Ephraim, inheritance of, 265.
Erosion, effect of hard and soft rocks, 149–150; of Palestine, 149; stage of, in Philistia, 79–80.
Esarhaddon, 375, 400, 401.
Es Beita, population of, 127.
Escarpment of Edom, 216, 218.
Esdraelon, battles in, 163; colonies in, 57; fault of, 25, 28, 50, 144; movements along fault of, 43; last movement, 148; plain of, 29, 169; roads through, 31.
Es Salt, 229, 230.
Eth Baal, annals of, 397.
Eucalyptus, 56, 58.
Exile, routes of, 273; of Samaritans, 400.
Exodus, 127, 268–272, 393.
Experiment station at Jaffa, 59.
Ezion-Geber, 396.

"Fallen Queen of the Desert," chapter xv, 337 ff.

Famine, in Ancient Syria, 391; in Egypt, 393; in 1874, 353 ff.; in Palestine, 397; in sub-tropical countries, 38.
Fanaticism in Samaria, 8.
Fara, plain of, 133.
Faris, guide, 105.
Fault, east of Dead Sea, 191.
Fault Scarp of Judea, 85, 89; of Edom, 105–107.
Faults (see Esdraelon, 25, etc., Dead Sea, 24, etc.).
Fellahin, character of, 56; servants of Beduin, 74.
Ferns, in Shephelah, 75.
Fertility, ancient, of Palestine, 263.
Fig trees, 56.
Firuz, Sassanian King, 329, 332.
Fischer (T. H.), cited, 249.
Floods at Beersheba, 115.
Flowers, near Gaza, 74; in Judea, 110; in Moab, 207.
Fords of Jordan, 315.
Forests, ancient, in North Syria, 264, 266–268, 284; effect on rainfall, 254; in Gilead, 229, 231, 233; Heb. words for, 266; in Lebanon, 45; relation to changes of climate, 285–286.
Former rains, 35, 419.
Fountains, stopping of, 398.
Fraas, cited, 249, 279.
France, size compared with Palestine, 20.
French campaign in Syria, 45.
French expedition to Egypt, 269.
Fuel in Judea, 84.

Galilee, chapter viii, 163 ff.; boundaries of, 29; compared with England and the United States, 171–173; description of, 175–177; fertility of, 169; non-Jewish character of, 163–166; lower, 168; physical divisions, 165–166; roads through, 160; small size of, 169; trade routes in, 171–173; upper, 165–168; variety of, 170–171; in time of Christ, 414–415.
Galilee, Sea of, ancient cities on coast of, 65, 178–179; description, 175–179; compared with Lake Constance, 32; origin of, 175.
Gardens, ancient, in Negeb, 124, 125; of Judea, 14.
Gasoline engines in Philistine Plain, 58.
Gatt, on crops of Negeb, 131.
Gaza, 159; agriculture near, 131; environs of, 74; era of, 123; harbor of, 52, 64; missionaries at, 131; sand dunes of, 79; scenery near, 60.
Gennesaret, plain of, 177.
Geographic environment, as mould of history, 3.
*Geographical Journal*, 330.
Geological structure, effect of, 4, 28; of Carmel, 155–156; of Edom, 220; of Galilee, 29; of Gilead, 28; of Judea, 10, 27–28, 138 ff.; of Judean Wilderness, 85; of Moab, 28; of Palestine, 23–31, 78, 81, 145–151; of Philistine Plain, 62; of Samaria, 9, 27–28, 137 ff., 155–156; of Shephelah, 78–81.
Gerar, 401.
Gerasa, 278 ff. (see Jerash).
Gerizim, Mt., 8, 15, 155.
Germany compared with Palestine, 32.
Ghor, 24 (see also Dead Sea, Arabs, and Jordan Valley), chapter ix, 188 ff., Arabs of, 107; Arab raids in, 189; defence of Judea, 90; formation of, 146, 148; historical importance of, 182–183; recent earth movements in, 305; near Samaria, 140–143; seclusion of, 183; topographical aspects of, 180–182; vegetation of, 201, 217; effect upon Arabs, 217, 218.
Gilboa, Mt., 144, 156; origin of, 28.
Gilead, chapter ix, 226 ff.; forests of, 229, 231, 233; geological structure of, 27–29, 145, 226, 233–234; Jewish character of, 227; peneplanation of, 147.
Gileadites, 232–233; conservatism of, 227; timidity of, 231.
Gilgal, 138.
Glacial period, 376; change of temperature in, 258–259; date of, 307; in Palestine, 258–259.
Glaciers on Mt. Lebanon, 255.
God-i-Zirrah, 323.
Golden Calf at Bethel, 140.
Gomorrah, King of, 93; location of, 194.
Graham, C. F., 99, 325, 347.
Graves in Negeb, 124.
Greek or Roman colonnades, 123.
Greek Priests, 87.

Greeks, complexion of, 408; in Jordan Valley, 186–187; origin of, 39.
Gregory of Tours, 317–318, 330.
Gudea, Babylonian prince, 381.
Guy, Crusader King, 200.

Haifa, 50; harbor of, 64; roads to, 160.
Haj, Pilgrimage, 210.
Harbors, 63.
Harosheth, 168.
Harvest scenes in Judea, 14, 15.
Hat, ancient, 125.
Hauran, 31, 160 (see Decapolis and Bashan); Arab invasions of, 301; boundary of, 29; plain of, 230.
Hebrews (see Israelites and Jews), contrasted with Phœnicians, 42; in Egypt, 393; evolution of ideals, 405; ideals of, 42; origin of, 127, 387, 388, 390; relation to coast, 53; wars with Philistines, 71.
Hebron, 16, 27; captured by Edomites, 111; fertility of, 96; history of, 111; location of, 82; relation to Edom, 105; to Judah, 105; scenery near, 95.
Hejaz Railway, 201, 204, 209.
Hermits in Wilderness of Judea, 87–88.
Hermon, 29, 234; compared with Alps, 33; upheaval of, 23.
Highlands, effect on civilization, 72.
High places at Petra, 223.
Hilderscheid, cited, 249, 263, 265, 267, 420.
Hill, cited, 363.
Hinnom, Vale of, 83.
Hippodrome at Bosra, 293.
Hiram and Solomon, 164, 167.
History, interpretation of, 4, 5.
Hittites, 31; in Palestine, 389; relation to Hyksos, 387; in Syria, 391.
Homs, 347.
Horizontal structure, effect of, 150–155.
Horses, export from Egypt, 306; on steep roads, 106.
Horns of Hattin, Battle of, 200.
Hospital at Hebron, 114.
Hot Springs near Dead Sea, 188.
Houses, architecture of, 54; domed roofs of, 13; porches of, 15.
Howeitat Arabs, 215.
Huleh, 174.
Hull, E., cited, 249.
Humboldt, opinion of Ghor, 180, 182.
Hunin, 16.
Hur and Moses, 128.
Hyksos, 385–388, 394.

Idealistic method of study, 5.
Ilandarin, ruins of, 291–292, 319–320, 329, 412.
Il Fedan, 300.
Indo-Germanic invasion of Syria, 401–402.
Inscriptions, at Aujeh, 122; frequency of, 334; in Negeb, 129–130.
Invasions, due to drought, 37.
Irbid, 235.
Irises, 207.
Irrigation, ancient, in Negeb, 109, 117–118; in Biblical times, 57–58.
Iron, early use of, 61.
Isaac, and Abimelech, 401; well at Beersheba, 114; well at Rehoboth, 121.
Ishbosheth, 227.
Isaiah, 164, 399.
Isis, temple of, 221.
Israel, first mention of, 391.
Israelites (see Hebrews and Jews), complexion of, 408; conquest of Og, 235, 236; conquest of Palestine, 395.
Istakhri, cited, 332.

Jacob at Bethel, 139.
Jaffa, description of, 54; harbor of, 52, 64; oranges of, 22; seen from Judea, 16; mention of, 159.
Jauf, oasis of, 275, 277, 330.
Jebel Druze, 230, 234; baths in, 290; menace to Bashan, 226.
Jebel Jermak, 166, 174.
Jebel Kalamon, 356.
Jebel Usdum (Sodom?), 108.
Jehoram, 397.
Jehoshaphat, attacked by Moabites, 93.
Jehovah worship on Carmel, 157.
Jenghis Khan, 371.
Jenin, 144; roads through, 159.
Jephthah, 227, 233.
Jerash, 279–282; dry springs at, 333.
Jericho, 21; relation to Dead Sea, 314; roads to, 90–91.
Jerusalem, destruction of, 165; going up to, 17; scenery around, 82.
Jesse, father of David, 71.
Jesus, baptism of, 315–316; and the

children, 28, 228, 232–233; limits of travels, 170; in Perea, 228; relation of teachings to environment, 182; and Samaritan woman, 136.
Jews (see Hebrews and Israelites), contrasted with Phœnicians, 42; in Galilee, 163–164, 174; return of, to Palestine, 57; at Palmyra, 340.
Jezebel, 8.
Jezreel, 8; battle at, 161; vale of, 29, 144.
Jisr el Mujamia, 304.
Jonathan, war with Philistines, 161.
Jones, on malaria, 410.
Joppa, 159 (see Jaffa).
Jordan-Arabah, 24–26.
Jordan River, ancient mouth of, 310; delta of, 314; fishermen of, 186; mouth of, 183, 187; source of, 27; used for water power, 174.
Jordan Valley (see Ghor), 189; origin of, 180; temperature of, 229.
Joseph, 8; in Egypt, 393.
Josephus, cited, 385.
Joshua, Book of, 264, 310; census under, 263, 270.
Judaism, persistence in Gilead, 28.
Judea, agriculture in, 15; altitude of, 36; boundaries of, 310; in time of Christ, 413; compared with Allegheny Plateau, 154; contrast with Negeb, 111; contrast with Samaria, 12, 14, 16, 28; density of population, 83; effect of plateau on history of, 17, 30; geological structure of, 12, 27–28, 138 ff. 144–155; invasion of by Arabs, 38, 397; isolation of, 30, 32, 41, 88–91, 405; natural boundaries of, 27; origin of name, 17; peasants of, 13–15; physical character of, 7; relation to Edom, 105; to Samaria, 136; to sea, 65; to thoroughfares, 155; roads of, 31, 151; ruggedness of, 151; scenery of, 12–14; as source of religion, 17; upheaval of, 23.
Judean Plateau, 7, 16; difficulty of traversing, 68; scenery of, 82; size and structure of, 66; stones near Hebron, 95–96.
Judean Wilderness, chapter v, 82 ff.; contrast with Shephelah, 95–99; geological structure of, 85; gorges of, 88; invasions through, 93–94; ruins in, 94.
Jugma, cistern of, 110.
Jungle, in Jordan Valley, 90.
Justinian, Wall at Palamyra, 339.
Jutta, Judean village, 17.

Kadesh, 286.
Kanawat, 245; spring at, 289.
Karietein, oasis of, 349.
Kasr el Yahud, 310, 313, 315.
Kasr el Hajleh, 312.
Kassites, invasion of Babylonia, 385, 389.
Kastal, 211, 282.
Kedron Valley, 83.
Kentucky, compared with Judea, 154.
Kerak, 216; castle of, 200.
Khabiri, 389.
Khalasa, crops at, 132; population of, 127; ruins of, 120, 124.
Khan Bayer, 276.
Khanikof, cited, 322.
Khyan, 382.
King, on Babylonia, 379 ff.
Kir-hareseth, battle of, 398.
Kish, 380.
Kishon, 163.
Kissing among Druzes, 244.
Kiyataleh, invasions of, 329.
Koseir el Halabat, pool at, 300.
Kumran, Wadi, 88.
Kureitein, ruins in Judea, 110.

Lacustrine deposits of Dead Sea, 304.
Lagash, in Babylonia, 380.
Lakes in North Syria, 286.
Latitude of Palestine, 33, 35.
Latter rains, 35, 419.
Lava, east of Dead Sea, 192; flows of Galilee, 174; in Liga, 246.
Lebanon, 29 (see also Phœnicia); compared with Alps, 33; description of, 44 ff.; freedom from war, 50; glaciers in, 255; over-population of, 48; roads through, 31, 44; scenery, 26; upheaval of, 23.
Lehman, on Egypt, 380.
Leja, 234; baths in, 290; inaccessibility of, 247–248; menace to Bashan, 226, 230; scenery of, 246.
Leuce-Come, 274.
Libyans, invasion of Egypt, 391–392.
Limestone, of Samaria, 155–156; of Shephelah, 80.
Lions, in Wilderness of Judea, 88.
Lisan, 191.
Litany River, 29, 166.

Livingstone, D., cited, 249, 272.
London, 20.
Lop-Nor, fluctuations of, 323–324, 328, 333.
Lot, 195.
Lugalzaggisi, 380.
Luynes, Duc de, expedition of, 270.

Malan, 330.
Machpelah, 111.
Madeba, 329; mosaic map at, 205; town of, 204.
Magan, 381.
Magdala, on Sea of Galilee, 178.
Malaria, effect on races, 409–410.
Manasseh, inheritance of, 265.
Manetho, cited, 385.
Map, mosaic, at Madeba, 205.
Mares of Arabs, 347–348.
Marine deposits of Philistine Plain, 55.
Mar Saba, monastery of, 87.
Martyrs, early Christian, 76.
Masterman, W. G. A., cited, 308.
Mecca, pilgrimage to, 209–210; railroad, 300, 331.
Medes, the, 402.
Mediterranean Sea, compared with Pacific Ocean, 22; view of, 16.
Megiddo, 144, 160; battle of, 388.
Meir, Rabbi, cited, 422.
Mejdel, village of Galilee, 178.
Meremptah, 391.
Merom, waters of, 174.
Mesopotamia, early history of, 379 ff.; trade routes to, 30.
Mesha, 199, 212.
Meshita, ruins of, 209.
Meteorological Phenomena, ancient, 419.
Meteorological Records, evidence as to climatic change, 254.
Meunim, invasion of Israel, 397.
Meyer, cited, 379.
Michmash, Israelites at, 140.
Midianites, 8.
Migration, in times of drought, 357; from Plateau to Ghor, 141–142; in Seventh Century, 331.
Mijleya, 291.
Mill, International Geography, 343.
Millet, raised in Negeb, 119.
Mineans (Meunim), 397.
Mimosa trees, 56.
Misgovernment, and depopulation, 210, 281; possible influence of, 40.
Mishna, the, on rainfall, 419–422.
Mitanni, 390; invasion of Mesapotamia, 385.
Moab, chapter x, 199 ff.; burden of, 399; compared with California, 22; contrast with Judea, 208; effect of aridity upon, 399–400; geological structure of, 28, 145, 200; invasion of, by Arabs, 37; northern boundary of, 27; peneplanation of, 148; physical divisions of, 203–205; scenery of, 202 ff.
Moabite Stone, 199, 212.
Moabites, change in character of, 397–400; character of, 199; invasion of Israel, 397; of Judea, 93.
Mohammedanism, rise of, 336, 371; conquest of Moab, 199.
Mohave Desert, compared with the Ghor, 22.
Mongols, diversion of Oxus River by, 333.
Mosaics, map at Madeba, 205; in church at Aujeh, 123.
Moses, at battle with Amalekites, 128.
Mount Carmel, peneplanation of, 147.
Mountain whites, compared with Hebrews, 154.
Mureg Asharan, irrigation canal of, 109.
Myos Hormos, trade route to, 278.

Naaman, 341.
Nabateans, invasion of Moab, 199; migration, 402.
Nablus (Shechem), 10.
Naboth, 8.
Nahr el Kelb, 44.
Naomi, 211.
Napoleon, invasion of Egypt, 269.
Naram-Sin, 381.
Naumachia at Bosra, 293; at Jerash, 280–281.
Nazareth, 169; roads through, 160; trade of, 171.
Nebk, 349.
Nebo, Mt., 202.
Negeb, chapter vi, 104 ff.; agriculture in, 129, 135; appearance of, 113; Christians in, 329; climate, changes of, in, 129 ff.; geological structure of, 138; nature of, 27; nomads of, 74, 130; population of, 126; as protection to Palestine,

128; routes across, 30; ruins of, 114–126; upheaval of, 23.
Nevada, compared with Syrian Desert, 26.
Neve, cited, 368.
New York, compared with Palestine, 20.
Nicodemus, 163.
Nile, drifting mud of, 64.
Nippur, 381.
Nomadism, conditions of, 126, 132–133, 401.
Nomadization, 75.

Oak scrub in Shephelah, 67.
Odenathus of Palmyra, 338.
Og, King of Bashan, 235, 236; land of, 230 (see Bashan).
Oleanders, 231.
Olives, 33, 60; of Shephelah, 67; flowers of, 74.
Olympia, ruins of, 330.
Ommiad, ruins, 289.
Oranges, in Philistia, 57, 60.
Orontes River, 26.
Orontes Valley, lakes of, 286.
Ox carts at Jerash, 279.
Oxen, in Bashan, 243; muzzled, 15.
Oxus River, changes of, 333.

Pacific Ocean, compared with Mediterranean, 22, 35.
Paintings, in caves, 78.
Palestine, ancient, chapter xvii, 405–416; boundaries of, 23, 29; in time of Christ, 413–416; climate before Christ, 373 ff.; climatic diversity of, 32, 36; compared with eastern U. S., 20; with California, 21, 35; with Germany, 32; with Switzerland, 32; conquest by Israelites, 394; diversity of, 228; Exploration Fund, 420; former population of, 263, 267; geological structure of, 23–31; latitude of, 33; methods of study of, 5; physical form of, 22, 406; size of, 19–20; southern limit of, 27; subtropical climate of, 34; trade routes through, 30; transportation in, 39; upheaval of, 23; variety of, 20–22; winds of, 36; Yale Expedition to, 5.
Palgrave, cited, 275, 276.
Palms, 60; in Dead Sea, 309; at Jenin, 144; wild, 192.
Palmyra, 278, 407; chapter xv, 337 ff.; contrast, with Damascus, 342; description of, 358–361; effect of climatic changes on, 366–372; history of, 338–340; roads to, 346; size of, 340, 344–345; war against, 336; water supply, 361–366; wealth of, 338.
Parched corn, 142.
Parched land, 104 (see Negeb).
Paris, 20.
Patterson, Dr., cited, 114.
Pavements of Shechem, 11.
Peasants, of Judea, 13–15.
Peneplain of Palestine, 147.
Pennsylvania, compared with Samaria, 154.
Perea, Christ in, 228.
Persians, invasion under Cyrus, 402.
Peter, vision of, 54.
Petra, 221–225, 278; location on trade routes, 30; trade routes to, 159, 273, 278, 305, 330.
Petrie, on Egypt, 380.
Pharisees, in Perea, 163.
Phasis River, 322.
Philadelphia, 20, 233, 278 (see Amman).
Philip, Emperor, 290.
Philistine Plain, 25, 159; colonies in, 57; culture of, 72; invasion of, by Arabs, 37; nature of, 53 ff.; routes through, 30; scenery of, 55; scenery near Gaza, 74.
Philistines, battle with Saul, 8, 161; early culture of, 60–61; invasion of Judea, 397; and Samson, 25; wars with Hebrews, 71.
Phinehas at Bethel, 139.
Phœnicia, description of, 44 ff. (see also Lebanon); roads to, 160.
Phœnician coast, depression of, 149.
Phœnician and Jew, chapter iii, 42.
Phœnicians, character of, 42; compared with Modern Syrians, 49; in Galilee, 167; outgoings of, 390; in Shephelah, 75, 77, 78.
Physical environment, relation to character, 72; relation to history, 3; reflected in Gospels, 136.
Pigeons, wild, 142.
Pilgrim route to Mecca, 208–209.
Plains, effect on civilization, 72.
Plateaus, see Edom, Galilee, Judea, Judean Plateau, Moab.
Pliny, description of Palmyra, 343.

Ploughs, of Arabs, 119.
Population, ancient density of, 262, 267; of ruins, 120, 126.
Porter, E. H., cited, 340.
Precipitation (see Rainfall).
Prickly Pear, 33.
Princes, wall of, 382.
Princeton Expedition, 283 ff., 334.
Progressive change of climate, hypothesis of, 255.
Ptolemy, on Arabia, 273.
Pulsations of climate, 377.
Pulsatory change of climate, hypothesis of, 256.
"Pulse of Asia," 325.
Pumpelly Expedition, 377.

Quarrels, between Arabs and Fellahin, 97.

Rabboth-Ammon, 233.
Raids, of Arabs, 215 (see Arab raids); effect of rain upon, 298, 302; of Moabites, 398–399; in Negeb, 126.
Railways, at Damascus, 341; projected in Egypt, 64; Hejaz, to Mecca, 209; water supply of Hejaz, 300; from Jaffa to Jerusalem, 69.
Rain, former and latter, 35, 419.
Rainfall, causes of, 85–86; dates of, 420–421; distribution by months, 34–35; effect of modern variations of, 296–302; effect on springs, 364; extremes of, 35; at Hebron, 96; on opposite sides of Ghor, 107–109; in Negeb, 115–116; of Palestine, compared with other countries, 259–260; seasons of, in Palestine, 257; source of, 36, 85.
Rameses II, 45.
Rameses III, 393.
Rawlinson, H., cited, 329.
Reapers, 354.
Reclus, cited, 249.
Red Sea, commerce in, 369; routes across, 278.
Rehoboth, 121.
Religious dissension in Egypt, 390, 392.
Renaud, of Chatillon, 199.
Rhine, compared with Jordan, 32.
Rift Valley of Africa, 182.
Roads in Edom, 105–107; in Judea, 12, 88–90, 91.
Robbers, among Druzes, 245; in Negeb, 105.
Roman bridge in Syria, 288.
Roman Government, relation to Arabs, 357–358.
Roman roads, 367; to Bosra, 242; to Moab, 201; to Petra, 219.
Roman ruins, at Sebastiyeh, 10.
Romans, conquest of Moab, 199.
Ruheibah, population of, 127; ruins, 121, 124.
Ruins, 39; in Chinese Turkestan, 324; decrease in, 288; of En-Gedi, 101; south of Hebron, 110; east of Jordan, 278 ff.; in lake beds, 322–324; in Negeb, 114 ff.; on borders of Palestine, 281; in Sinai, 271–272; in Syrian desert, 276.
Russian Monastery at Jaffa, 59.
Ruth, 142, 211.

Sacrifices, at Edrei, 238.
Safed, 16.
Said Khalifa, official at Beersheba, 116.
St. Catherine, monastery of, 87.
St. George, monastery of, 87.
St. John the Baptist, convent of, 310, 316.
St. Quentin, 20.
St. Saba, monastery of, 87.
Saladin, 200.
Salaries of officials, 116.
Saleh, spring at, 289.
Salinity of Dead Sea, 181.
Salt deposits of Dead Sea, 108.
Salt gatherers on Dead Sea, 92.
Salt lakes, of Asia, 321 ff.; of California, 26.
Salt springs in Ghor, 90, 108.
Samaria, relative accessibility of, 140 ff., 143–145; boundaries of, 143–144; chief towns of, 10; in time of Christ, 414; city of, 9, 10, 11; location near roads, 161; compared with Appalachians, 150; contrast with Judea, 7, 12, 16; effect of trade, 31; fall of, 407; foreign associations of, 8; foreign influences in, 11; ancient forests of, 265; geological structure of, 11, 27–28, 137 ff., 145–150, 155–156; natural boundaries of, 27–28; relation of inhabitants to physical features, 11–12; relation to sea, 65; relation to thoroughfares, 155; scenery of, 8–12; size of, 138, 139; trade routes through, 158–162; women of, 9, 136.

Samaritans, deportation of, 400; dress of, 11; relation to Jews, 136.
Samrah, 300.
Samson, 25, 69 ff.
Sand dunes, near Gaza, 79; of Ghor, 218; in Negeb, 120.
Sandstone, of Edom, 106; of Petra, 220–223.
Sanhedrin, removal to Galilee, 164.
Sarafan, village, 59.
Sargon I, 381.
Saris, village, 82.
Saul, defeat of, 8; war with Amalekites, 128; war with Philistines, 71, 161.
Sawahri Arabs, 92.
Scythes of early Israelites, 61.
Scythian invasion, 402.
Sea, effect upon Phœnicians, 47 ff.; effect upon Philistines and Hebrews, 62; influence upon Phœnicians and Jews, 43.
Seba, Wadi es, 113.
Sebastiyeh, ancient Samaria, 10.
Sebkah, salt plain of Dead Sea, 107; Palmyra, 360.
Seistan, 323, 328.
Selim, 45.
Semakh, village of Galilee, 178.
Semitic invasion of Babylonia, 379, 383.
Sepulchral Towers at Palmyra, 359.
Serakh, bath at, 289, 332, 335.
Sergilla, 291.
Sesostris, inscription of, 45.
Sha'arah, 290.
Sharon, Plain of, 43 (see Philistine Plain).
Sheba, bath at, 290; Queen of, 396.
Shechem, description of, 10.
Sheep, rarely watered, 93.
Shells, on Mediterranean coast, 55.
Shephelah, chapter iv, 66 ff.; as battle-ground, 71; continuation in Samaria, 143; contrast with Judean Wilderness, 95–99; contrast with neighboring regions, 68; geological structure of, 78–81; nature of, 67; peneplain of, 147; seen from Sinjil, 16; as refuge, 73.
Shepherd boys of Judea, 84.
Shererat Arabs, 330–332, 370, 386.
Shore of Mediterranean, 63.
Si'a, bath at, 290.
Sidon, 51, 63.
Sidonian traffickers, 8.
Silk at Petra, 222.
Silet ed Dabr, village of Samaria, 9.
Sinai, 23; inhabitants of, 270; Israelites in, 268–272; Mt. 87; ruins in, 271–272.
Sinjil, Judean village, 12, 138.
Sinuhe, Egyptian traveller, 384.
Sisera, 163, 168.
Smith, Geo. A., cited, 76, 156.
Snow, 298, 300; relation to crops, 260.
Sodom, apples of, 201; identified with Usdum? 108; king of, 93; location of, 194–198.
Soil, and change of climate, 411–413; denudation of, 40; diminution of, in Syria, 286–287; washing away of, 112.
Soldiers, relation to Arabs, 350–352.
Solomon, extent of kingdom under, 25; and Hiram, 164, 167; trade in horses, 396.
Sorek, Vale of, 69, 81.
Soundings of Dead Sea, 325.
Spies, of Joshua, 128.
Springs, dry, 289, 333.
Stein, M. A., cited, 324, 328, 402.
Stones, prevalence of in Judea, 96; use in North Syria, 284.
Storks, 300.
Strabo, on Arabia Petrea, 274; on Caspian Sea, 322, 327; on Galilee, 164.
Strands of Dead Sea, 303–310.
Succoth, 391.
Sulkhad, 242.
Sumer, 379.
Sun, Temple of, at Palmyra, 340, 359, 360, 361.
Sunset scenery, in Judea, 15.
Switzerland compared with Palestine, 32.
Syria, architecture in, 284, 334; distinguished from Palestine, 29; in Fourteenth Century, B. C., 389; mountains of, 26; wars of, 335–336.
Syrian Desert, 24, 26; roads across, 275–278; ruins in, 276; temperature of, 346–347.
Syrians, in America, 48; character of, 287, 288; in Egypt, 393.

Tabernacles, Feast of, 57, 420.
Tabor, 166; Mt., 163.
Tafileh in Edom, 105.
Taiyibeh, 17, 141, 153.

Talmud, on rainfall, 419; written in Galilee, 164.
Tamerlane, 333, 372.
Tanganyika, Lake, 182.
Tattooing, 13, 236.
Tear bottles, 125.
Teima, 330.
Tekoa, Wilderness of, 84.
Tell el Amarna, 389.
Tell el Hesy, fields near, 134.
Tell Hum, 177.
Tell Nebi Minto, 286.
Temperature, at Dead Sea, 90; in May, 229; of Syrian Desert, 346, 347.
Temple at Jerusalem, 291.
Tennessee compared with Judea, 154.
Terraces, ancient, 124; of cultivation at En-Gedi, 101; of Jordan, 315; in Negeb, 124; of Samaria, 8; in North Syria, 286.
Tertiary Era, 23.
Theatre at Amman, 295; at Bosra, 293; at Jerash, 280.
Thomas of Ilandarin, 292, 295.
Thotmose III, 388.
Threshing-floors, 15.
Tiberias, lake of (see Galilee).
Tiberias, town of, 178.
Tiglath-Pileser I, 395.
Tiglath-Pileser IV, 400.
Timaus, king of Egypt, 385.
Timber, former use of, in Syria, 284; exported from Syria, 395.
Tombs, of Beit Jibrin, 76–78; at El Beida, 221; of the kings, 307.
Topography, relation to geology and history, 6.
Torrey, Prof. C. C., cited, 123.
Trade routes, ancient, 268–277; cause of abandonment, 277–278; effect upon Philistines, 61; effect upon Samaria, 158–162; in Galilee, 171–173; in Syrian desert, 367–370.
Traffic, effect on Samaria, 31.
Trajan, 336; and Arabs, 357.
Transcaspia, drought in, 332, 377.
Treasury of Pharaoh, 221.
Trees, 266 (see forests); distribution of, 60.
Troglodytes, in Gilead, 232.
Truth, low estimate of, 98.
Turbans, green, 10.
Turkish Government, relation to Arabs, 350–352, 356–358; relation to Beduin, 97; at Beersheba, 113, 115 ff.; degeneration under, 264; relation to Druzes, 240–242.
Turkish officials in Edom, 105.
Turkish projects of reform, 121, 122.
Turkomans in North Syria, 299.
Turmus, 60 (Arab bean).
Tyre, 51, 63, 167; ladder of, 167.

Uazed, 382.
Um ed Jemal, 300; ruins of, 294.
Underground water, changes of, 296.
Uniformitarian hypothesis of climate, 254.
United States, compared with Palestine, 20.
Ur, 380.
Utah, 21, 28; compared with Edom, 220.
Uzdum, 191, 194.

Vegetables of Jerusalem, 83.
Vegetation, in dry *vs.* wet years, 296–299; of Ghor, 217–218; of Judea, 14; of Philistine Plain, 56.
Volcanoes, of Galilee, 165, 174, 175; of Leja, 246; near Sodom, 196.

Wadi Aujeh, 121.
Wadi Butm, bridge at, 288.
Wadi Fedan, 219.
Wadi Mojib, 193.
Wadi Rajil, 288.
Wadi es Seba, 113; floods in, 115; wells in, 118, 134.
Wadi Sheriyah, limit of cultivation, 131, 134.
Wadi Sirhan, 276, 277.
Wadi Zedi, 300.
Wars in Shephelah, 71.
Water supply, at Amman, 295; at Bosra, 293; at Ilandarin, 292, 296; at Jerash, 280; of Petra, 222; at Um ed Jemal, 294 (see Climate).
Waterworks at Petra, 118.
Weisit, 277.
Wells, at Beersheba, 114, 118; in caves of Shephelah, 76; in Wadi es Seba, 134; in Philistine Plain, 58; stopped with stones, 101.
Wen Amen, travels of, 395.
Western Plateau, 24–26.
Wheat culture in Negeb, 117.
Whiting, J., cited, 127.
Wight, Isle of, 20.

Wilderness of Judea, chapter v, 82 ff. (see also Judea).
Wildernesses, cause of, 86.
Wilson, cited, 249, 420.
Winds, prevailing, 34, 36.
Women, among Druzes, 243; of Arabs, 110; dress of Arab, 236; dress of, in Philistine Plain, 59; dress in Judea, 13; of Samaria, 9; tattooed, 13; unveiled in villages, 14.
Wood, former use of, 284.
Worship of Semites, 224.
Wright, cited, 352-357.

Yabrud, 353.
Yale Expedition to Palestine, 5, 45, 186, 195.
Yaqeb-her, 382.
Yarmak River, lava flows and delta, 175.

Zebina, Christian martyr, 76.
Zenobia, 338, 339.
Zionist movement, 57.
Ziza, ruins of, 211, 282, 400.
Zoar, 108.
Zuweireh (Zoar?) 108.

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